City of Tehachapi

The Address at Tehachapi- Planned Development Subdivision

Draft Initial Study/Mitigated Negative Declaration
June 2020

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Acronyms & Abbreviations

AB ..... Assembly Bill
afy ..... acre-feet per year
APN ..... Assessor's Parcel Number
AQP ..... Air Quality Plan
BMP ..... Best Management Practices
CalEEMod ..... California Emission Estimator Model
CalEPA ..... California Environmental Protection Agency
CAL FIRE ..... California Department of Forestry and Fire Protection
Cal/OSHA ..... California Division of Occupational Safety and Health
Caltrans ..... California Department of Transportation
CARB ..... California Air Resources Board
CCR ..... California Code of Regulations
CDFW ..... California Department of Fish and Wildlife
CEQA ..... California Environmental Quality Act
CNDDB ..... California Natural Diversity Database
CSUB ..... California State University Bakersfield
DOC ..... California Department of Conservation
DTSC ..... California Department of Toxic Substances Control
DWR ..... California Department of Water Resources
EIR ..... Environmental Impact Report
EKAPCD ..... East Kern Air Pollution Control District
EPA ..... Environmental Protecation Agency
FEIR ..... Final Environmental Impact Report
FHRP ..... Fire Hazard Reduction Program
FMMP ..... Farmland Mapping and Monitoring Program
GC ..... Government Code
GHG ..... Greenhouse Gas
IS ..... Initial Study
KCAPCD ..... Kern County Air Pollution Control District
MMRP ..... Mitigation Monitoring and Reporting Program
MND ..... Mitigated Negative Declaration
NAAQS ..... National Ambient Air Quality Standards

NAHC ..... Native American Heritage Commission
ND ..... Negative Declaration
PRC ..... Public Resources Code
RWQCB ..... Regional Water Quality Control Board
SB ..... Senate Bill
SEMS ..... Standardized Emergency Management System
SGMA ..... Sustainable Groundwater Management Act
SoCal ..... Southern California Edison
SR ..... State Route
SSJVAIC ..... Southern San Joaquin Valley Archaeological Information Center
SWP ..... State Water Project
SWPPP ..... Stormwater Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
TCCWD ..... Tehachapi-Cummings County Water District
The Gas Co ..... The Gas Company
TIS ..... Traffic Impact Study
tpy ..... tons per year
TTM ..... Tentative Tract Map
TUSD ..... Tehachapi Unified School District
USFWS ..... U. S. Fish and Wildlife Service
USGS ..... U.S. Geological Survey
UWMP ..... Urban Water Management Plan
VMT ..... Vehicle Miles Traveled
WWTF ..... Wastewater Treatment Facility

Chapter 1 Introduction

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the City of Tehachapi (City) to address the environmental effects of *The Address at Tehachapi* - Planned Development Subdivision (Tentative Tract 7374/Planned Development No. 2019-02) pertaining to approximately 57 acres of property located at the northeast corner of Tucker Road and Highline road in the City of Tehachapi, CA, Kern County (Assessor's Parcel Numbers (APNs) 417-011-14 and 417-011-15). This document has been prepared in accordance with the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 *et seq.*) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, *et seq.*). The City is the CEQA lead agency for this proposed Project.

The site and the proposed Project are described in detail in **Chapter 2 Project Description**.

1.1 Regulatory Information

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

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

b. The IS identified potentially significant effects, but:

    1. Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed IS/MND are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur is prepared, and

    2. There is no substantial evidence, in light of the whole record before the agency, that the proposed Project *as mitigated* may have a significant effect on the environment.

1.2 Document Format

This IS/MND contains five chapters and six appendices. **Chapter 1 Introduction** provides an overview of the proposed Project and the CEQA process. **Chapter 2 Project Description** provides a detailed description of proposed Project components and objectives. **Chapter 3 Impact Analysis** presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the proposed

Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. **Chapter 3** Impact Analysis concludes with the Lead Agency's determination based upon this initial evaluation. **Chapter 4 Mitigation Monitoring and Reporting Program (MMRP)**, provides the proposed mitigation measures, implementation timelines, and the entity/agency responsible for ensuring implementation. The IS/MND concludes with **Chapter 5 Works Cited** a listing of the works cited or relied upon in the analysis.

1.3 Documents Incorporated by Reference

Pertinent documents relating to this IS/MND have been cited and incorporated in accordance with Sections 15148 and 15150 of the State CEQA Guidelines to eliminate the need for inclusion of large planning documents within the IS/MND. Of particular relevance are those previous studies that present information regarding descriptions of the environmental setting, future development-related growth, and cumulative impacts. The following documents are hereby identified as being incorporated by reference:

- City of Tehachapi General Plan (Adopted May 2013)
- Tehachapi Bicycle Master Plan (Adopted June 2012)
- Tehachapi Zoning Ordinance (Adopted October 2014, Amended 2019)

Chapter 2 Project Description

2.1 Project Title

The Address at Tehachapi - Planned Development Subdivision (Tentative Tract Map No. 7374; Planned Development No. 2019-02)

2.2 Project Details

The Address at Tehachapi, LLC (Developer) is proposing to subdivide 57 acres generally located at the northeast corner of Highline Road and Tucker Road in the City of Tehachapi, California (APNs 417-011-14 and 417-011-15). The Project is identified as *The Address at Tehachapi*, Tentative Tract 7374 (TTM 7374)/Planned Development No. 2019-02 (herein referred to as "*The Address Subdivision"* or TTM 7374). The Project is a Planned Residential Development that proposes to construct the following:

- 234 lots ranging in size from 6,600 square feet to 8,100 square feet for detached single-family residences and 3 larger single-family lots ranging in size from 10,373 square feet to 16,620 square feet for a total of 239 developable lots;
- 1.97 acres of open space consisting of two park/open space areas anchored by a community clubhouse and amphitheater at the center of the subdivision; and
- A large lot reserved for installation of storage units and to allow for parking recreational vehicles for sole use of residents at the Southeast corner of the subdivision.

Landscape areas (including the main central green space area and street landscaping), street lighting, the clubhouse, RV parking lot, and storage areas will be maintained by a homeowner's association. All streets, sidewalks, domestic water, storm drain, and sanitary sewer will be publicly owned and maintained. "Dry" utilities within the project and frontage roads, to include power, natural gas, communication lines, and cable TV, will be installed in public utility easements, and will be owned and maintained by their respective utility companies.

The development would provide two full-access entrances: one from Tucker Road and one from Highline Road, each centrally located along the respective frontage. The clubhouse and its surrounding open space would include a meeting room and an open-air amphitheater. The remaining open space would include passive recreational areas and low-maintenance, water-efficient landscaping. The clubhouse may also include a restaurant and recreational facilities for the residents.

The subdivision will also provide pedestrian and bicycle access to the planned trail which will run outside and along the northern boundary of the Project. The Project's open spaces would include permeable areas to minimize storm water runoff. The Project's on-site storm water runoff will be collected by an internal storm drain system consisting of catch basins and conveyance pipelines. Collected storm water will be conveyed and deposited into the flood control channels abutting the northern and eastern boundaries of the Project. Said channels are owned and maintained by the Tehachapi Cummings County Water District. Once storm water is deposited into said channels, it would be conveyed via the open channels to the flood control/ground water recharge basin located immediately north of the subdivision.

The Project includes public road improvements to adjacent County-maintained roadways. Domestic water supply and wastewater treatment would be provided by the City of Tehachapi. The tract map will be recorded

in up to eleven phases. Construction of homes is anticipated to occur over a nine-year period commencing as early as September 2020 with completion by September 30, 2030.

2.2.1 Lead Agency Name and Address

City of Tehachapi
117 S. Robinson Street
Tehachapi, CA 93561

2.2.2 Contact Person and Phone Number

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CEQA Consultant
Provost & Pritchard Consulting Group
Louise Palmer, Environmental Project Manager
(661) 616-5900

2.2.3 Project Location

The Project is generally located at the northeast corner of Tucker Road and Highline Road in Tehachapi (see **Figure 2-2**), California, Township 32S, Range 33E, Section 29, Mount Diablo Base & Meridian. Assessor's Parcel Number 417-011-14 and 417-011-15. United States Geological Survey (USGS), 7.5-Minute Tehachapi South Quadrangle (see **Figure 2-3**).

2.2.4 General Plan Designation

The Tehachapi General Plan designates the subject property Neighborhood Edge and Neighborhood General (see **Figure 2-5**). The Neighborhood Edge General Plan designation allows for minimum lot areas of 6,000 square feet and maximum lot areas of 40,000 square feet. The Neighborhood General - General Plan designation allows for minimum lot areas of 2,000 square feet and maximum lot areas of 40,000 square feet.

2.2.5 Zoning

The subject property is zoned T-3 (Neighborhood Edge) and T-4 (Neighborhood General) (see **Figure 2-6**). The T-3 and T-4 zone designations allow lots for houses to range in size from 7,500 to 40,000 square feet.

2.2.6 Surrounding Land Uses

Table 2-1 Surrounding Land Uses

Surrounding Land Uses			
Direction	**Existing Land Use**	**General Plan**	**Zoning**
North	Antelope Run Drainage	Neighborhood Edge (T-3) Neighborhood General (T-4)	Neighborhood General (T-4)
South	Developed & Undeveloped suburban residential lots	Estate Residential 2.5 acres; Estate Residential 20 acres	Neighborhood General (T-4)
East	Developed & Undeveloped suburban residential lots	Estate Residential 2.5 acres;	Estate Residential -2.5-acre min. (E-2.5) Estate Residential -20-acre min. (E-20) (County)
West	Vacant land	Rural, Rural General	Rural General (T-2.5)

2.2.1 Other Public Agencies Whose Approval May be Required

Kern County Fire Department
Kern County Development Services Departments
Tehachapi-Cummings County Water District
East Kern Air Pollution Control District (EKAPCD)
Regional Water Quality Control Board (RWQCB)

2.2.2 Cumulative Projects/Methodology

Pursuant to the CEQA Guidelines Section 15064(h)(1), this Initial Study evaluates the cumulative impacts of the Project by considering the incremental effects of the proposed project in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The projects listed in **Table 2-2** were included in the evaluation of the cumulative impacts of the Project, due to their proximity to the proposed project site and the potential to contribute to environmental effects of the proposed project.

Table 2-2 Cumulative Projects

Cumulative Projects			
Project Name	**Project Type**	**Project Location**	**Size/No. Units Remaining**
Tract Map No. 6062	Single-family residential	S. of Pinon St, W. of Dennison Rd., E. of Curry St., N. of Highland Rd.	15 dwelling units
Tract Map No. 6216	Single-family residential	S. of Pinon St, W. of Curry St, N. of Highland Rd.	234 dwelling units
Tract Map No. 6554	Single-family residential	North and adjacent to Valley Blvd, west and adjacent to Dennison Rd, and north of Tehachapi High School	95 dwelling units
Mill Street Retail Center	Restaurant/Fast Food	NE corner of Mill St and Industrial Pkwy	3,000 sf
Red Apple Pavilion	Convenience Store, Restaurant	Located at the southwest corner of Tehachapi Blvd/Red Apple Ave and Tucker Rd	120,456 sf
Oak Tree Village	Master Planned- Residential & Commercial	North of Hwy 58 and east of Capital Hills area	996 dwelling units

Cumulative Projects			
Project Name	**Project Type**	**Project Location**	**Size/No. Units Remaining**
Industrial Parkway Development	Automotive Retail/Automotive Training	Industrial Parkway, east of Mill St	20,000 sf
Walmart Out Parcels	Commercial/Retail	400 Tucker Road	3.46 acres
Bailey Court Buildout	Industrial	Bailey Court	10.63 acres
Marley's Mutts	Office	Parcel 5 on east side of Bailey Avenue	37.500 sf
Bailey Court Lot 13	Industrial	Parcel 13 on the west side of Bailey Avenue	0.9 acres
Goodrick Industrial	Industrial	Parcel 8 of Parcel Map 8331. North side of Goodrick Drive	32,234 sf
Snow Orthodontics	Office	East side of Tucker Road between the Remax building and King of Siam/M&M sports	1.84 acres
Sage Ranch	Residential (mixed use)	138 acres of vacant land bounded by Valley Boulevard to the north, Tract 6212 to the west, Pinon Street to the south, and Tehachapi High School to the east	1,068 units

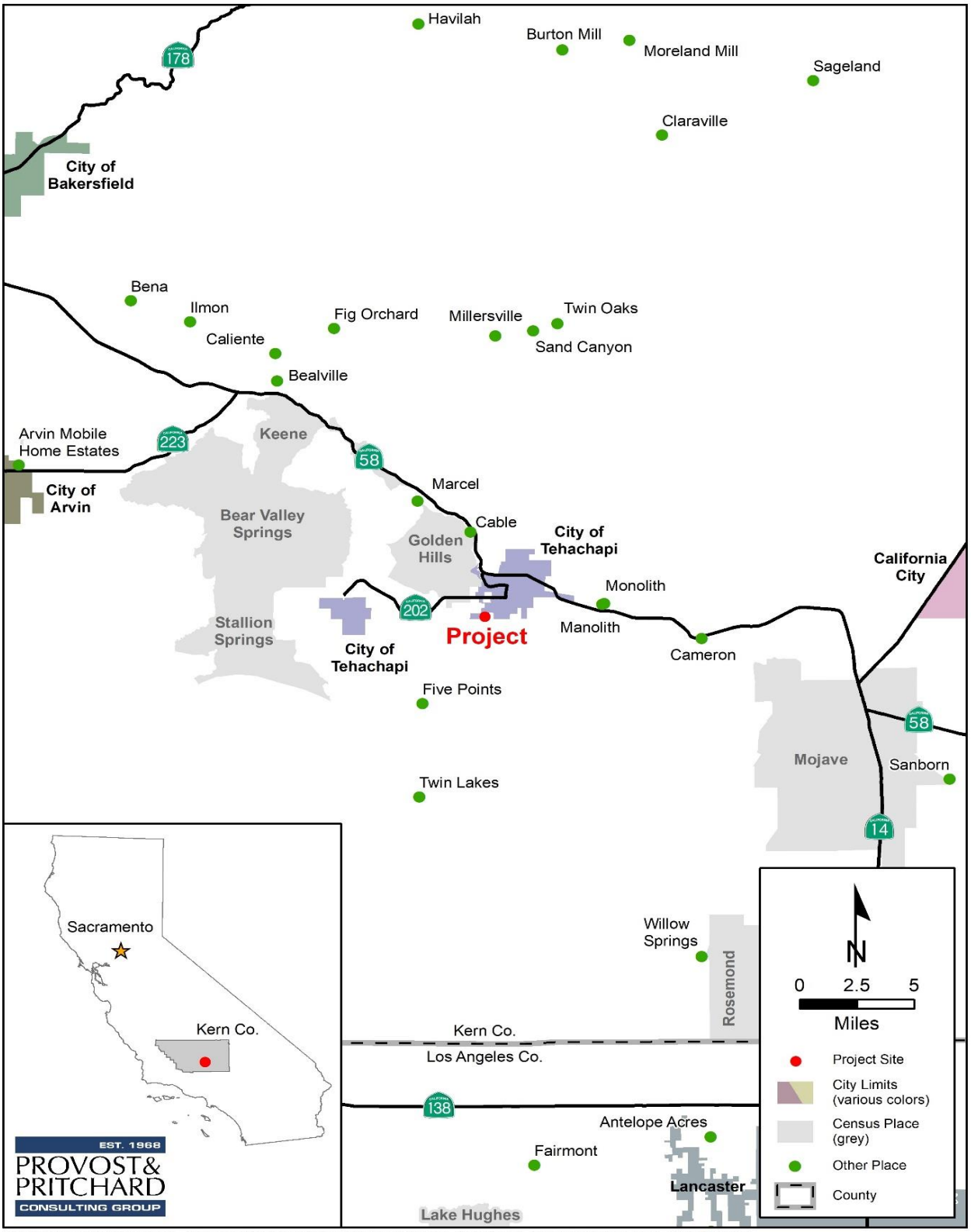

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Figure 2-1 Regional Location

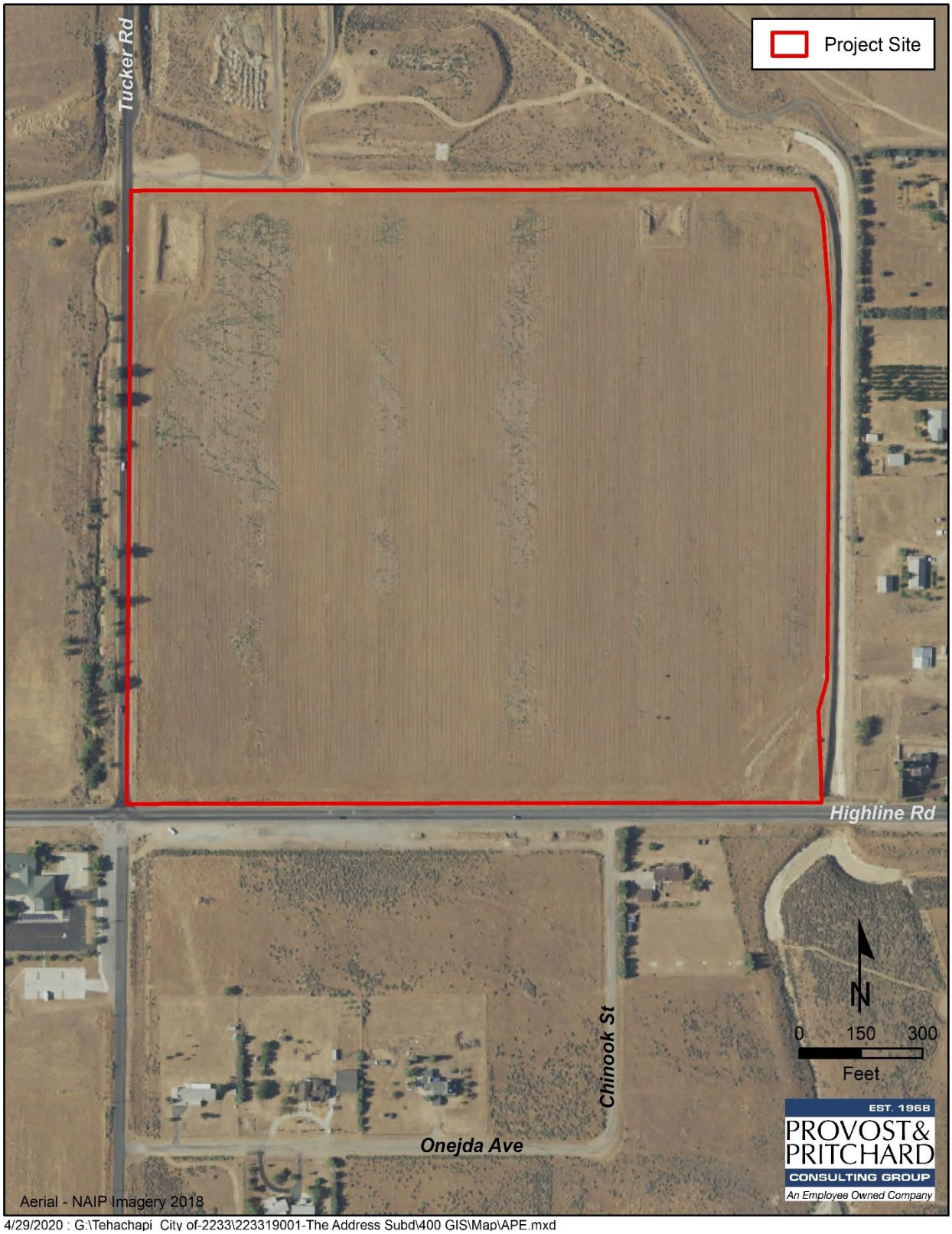

Figure 2-2 Project Location Map

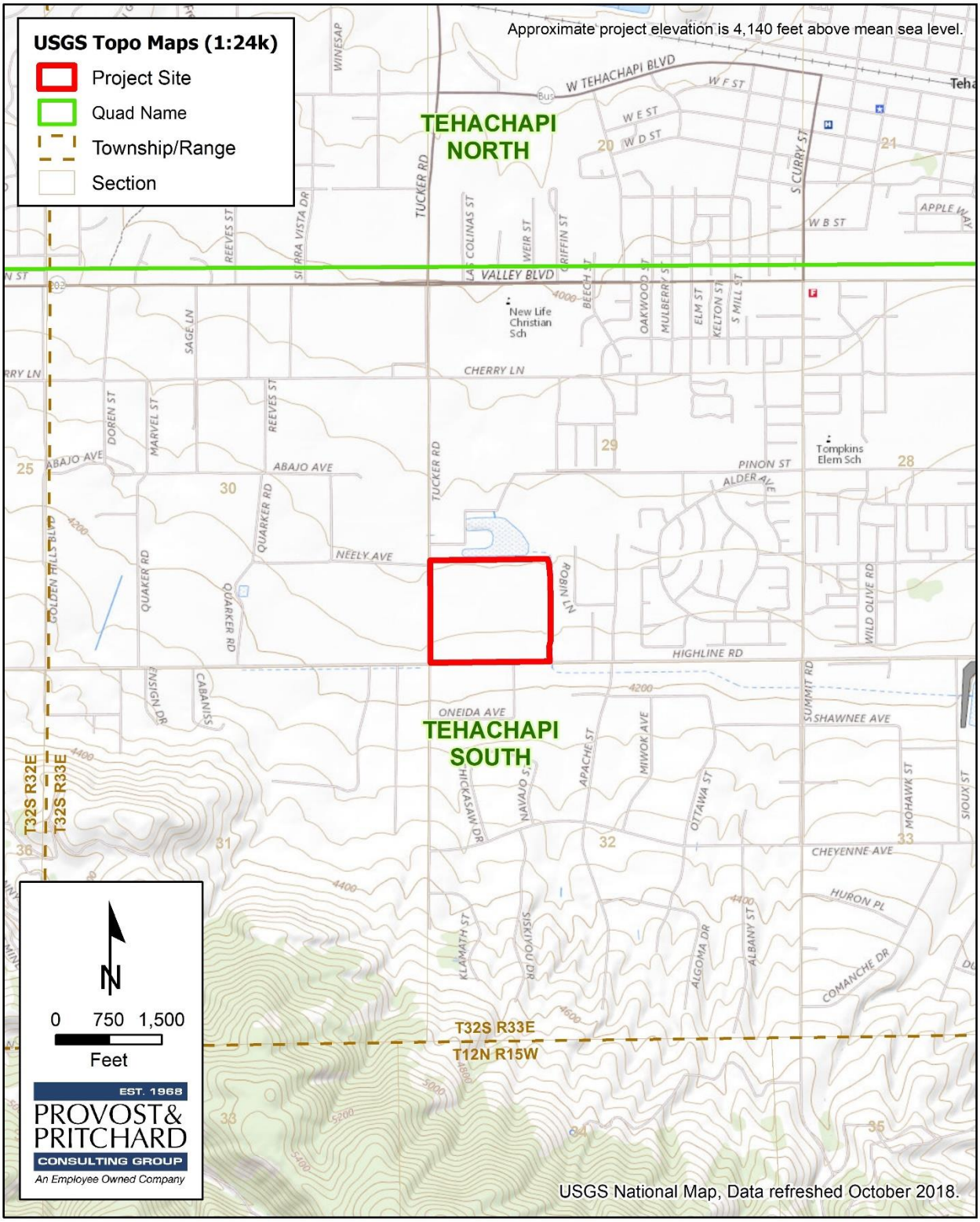

Figure 2-3 Topographic Quadrangle Map

Figure 2-4 Preliminary Tract Map

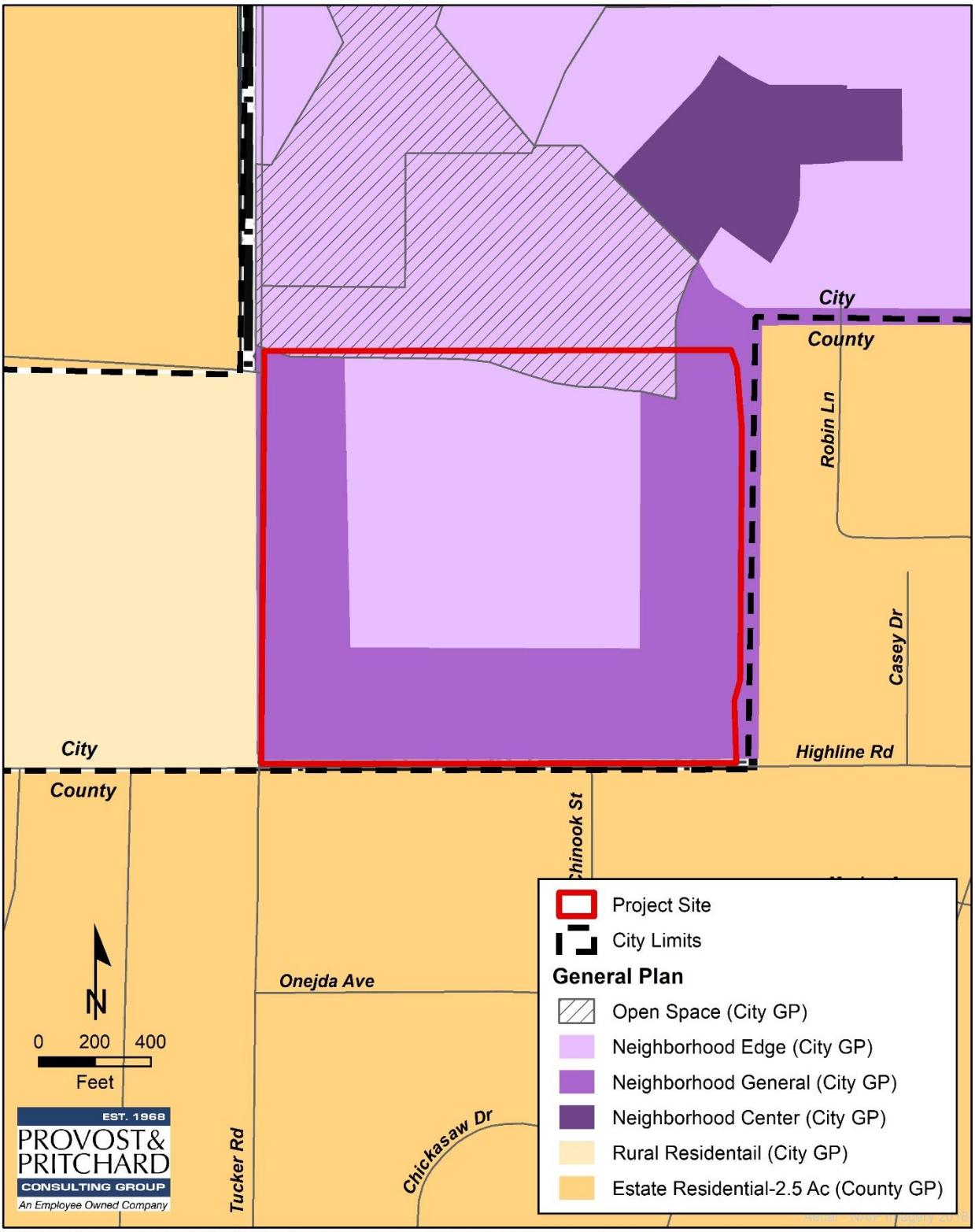

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Figure 2-5 General Plan Land Use Designation Map

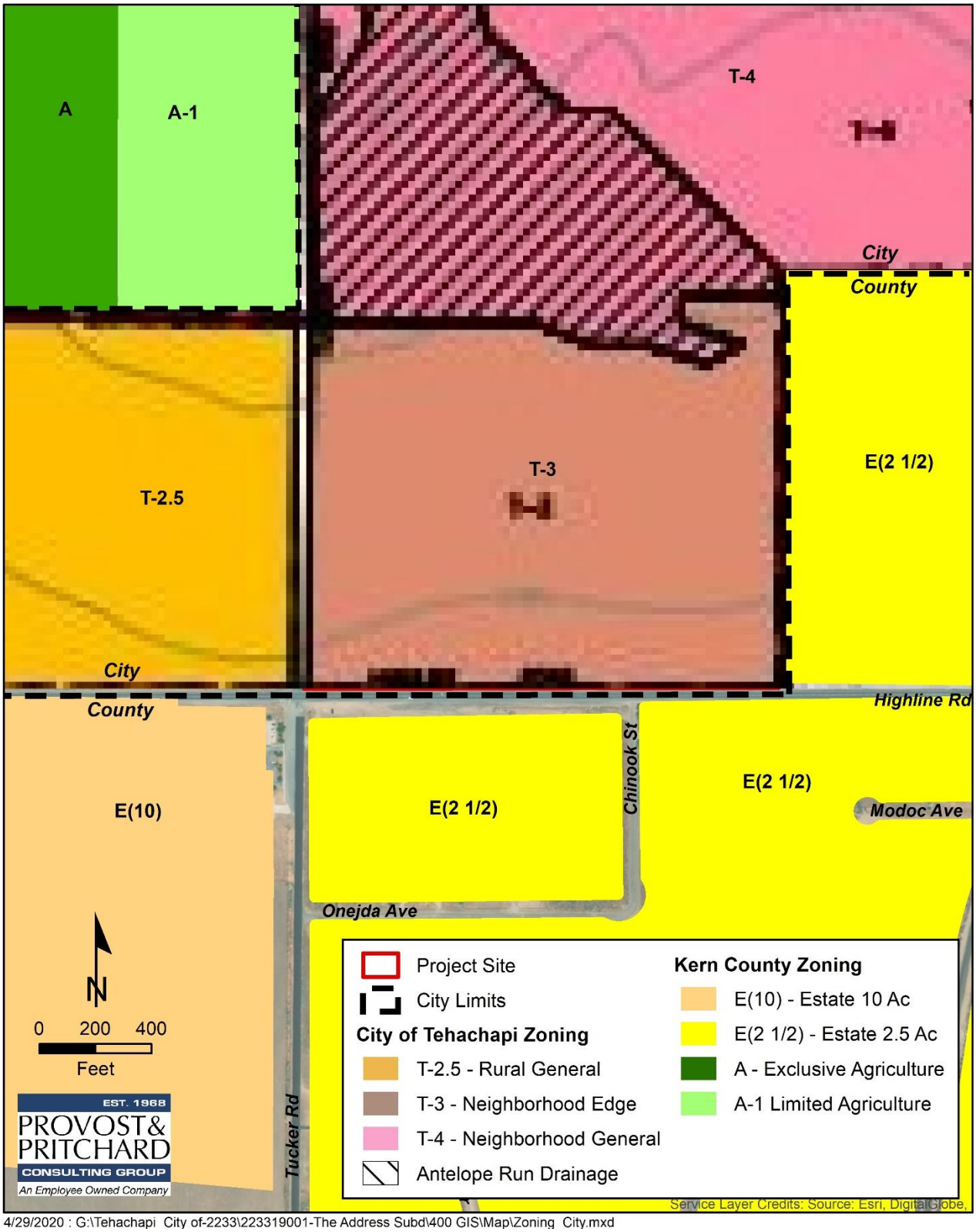

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Figure 2-6 Zone District Map.

Chapter 3 Impact Analysis

3.1 Environmental Factors Potentially Affected

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

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

The analyses of environmental impacts provided in **Chapter 3: Impact Analysis** are separated into the following categories:

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

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

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

3.2 Aesthetics

Aesthetics				
Except as provided in Public Resources Code Section 21099, would the project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
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 which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.2.1 Environmental Setting and Baseline Conditions

A scenic vista is generally regarded as a viewpoint that provides a distant view of highly valued natural or man-made landscape features for the benefit of the general public. Within the Tehachapi area, scenic vistas include the Tehachapi Mountains and views of the Sierra Nevada mountain range and the San Emigdio Mountain range. Scenic resources include landscapes and features that are visually or aesthetically pleasing. Scenic resources contribute positively to a distinct community or region and may infer a visual benefit upon communities. Typical scenic resources within the planning area include landscaped open spaces such as parks and golf courses. Historic buildings, generally located in downtown Tehachapi, represent scenic resources and provide a uniquely distinct skyline.

3.2.2 Methodology

Urban versus Rural

For purposes of this analysis, and as defined in CEQA (PRC Section 21071), an Urbanized Area means either of the following:

(a) An incorporated city that meets either of the following criteria:

(1) Has a population of at least 100,000 persons.

(2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons.

(b) An unincorporated area that satisfies the criteria in both paragraph (1) and (2) of the following criteria:

(1) Is either of the following:

(A) Completely surrounded by one or more incorporated cities, and both of the following criteria are met:

(i) The population of the unincorporated area and the population of the surrounding incorporated city or cities equals not less than 100,000 persons.

(ii) The population density of the unincorporated area at least equals the population density of the surrounding city or cities.

(B) Located within an urban growth boundary and has an existing residential population of at least 5,000 persons per square mile. For purposes of this subparagraph, an "urban growth boundary" means a provision of a locally adopted general plan that allows urban uses on one side of the boundary and prohibits urban uses on the other side.

(2) The board of supervisors with jurisdiction over the unincorporated area has previously taken both of the following actions:

(A) Issued a finding that the general plan, zoning ordinance, and related policies and programs applicable to the unincorporated area are consistent with principles that encourage compact development in a manner that does both of the following:

(i) Promotes efficient transportation systems, economic growth, affordable housing, energy efficiency, and an appropriate balance of jobs and housing.

(ii) Protects the environment, open space, and agricultural areas.

(B) Submitted a draft finding to the Office of Planning and Research at least 30 days prior to issuing a final finding, and allowed the office 30 days to submit comments on the draft findings to the board of supervisors.

Because the Project does not meet the criteria of both paragraph (1) and (2) above, the Project is considered to be located within a rural area.

3.2.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to protection of the aesthetic value of the City.

Natural Resources Element

Policy NR-14. Enforce Tehachapi's 'dark sky' protocol to preserve nighttime views, prevent light pollution, reduce light spillage both upward and onto adjoining properties,

Policy NR-15. Require that outdoor lighting not create or worsen incompatible situations,

Policy NR-32. Maintain standards that:

a. prohibit walls from blocking views of, or access into, natural areas;
b. reflect the intended physical context(s) to which the standards are to be applied;
c. require appropriate and contextually responsive connections between urban and rural areas;
d. treat paths, trails, etc., as an integral part of the adjacent, intended physical context.

Town Form Element

Policy TF-19. Require that all housing, whether single-family or multi-family, be designed in 'house-form' buildings and masses, and that new buildings emphasize regional architectural traditions and natural building materials.

3.2.3 Impact Assessment

I-a) Would the project have a substantial adverse effect on a scenic vista?

a) Less Than Significant Impact. The Project area does not propose significant impediments to the general public or obstructions to the view of natural features such as the Tehachapi mountains. Height and bulk restrictions of the base zone district and those of the surrounding properties would reduce visual impacts that could have the potential to obstruct views. Accordingly, the Project would not have a substantial adverse effect on a scenic vista.

Mitigation Measures

No mitigation is warranted.

I-b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

b) No Impact. There are no identified scenic resources, trees, rock outcroppings, or historic buildings on or near the subject site. The California Department of Transportation (Caltrans), State Scenic Highway Programs provides a program for the official designation of highways determined to be of scenic value. A review of the officially designated scenic highways determined that State Route 58 (SR 58), the nearest state highway in the project's vicinity, is not designated scenic near the Project. The City supports Kern County's efforts to designate SR 58 as a scenic highway; however, such designation is not yet official. SR 58 is however, designated scenic approximately 20 miles farther east of the Project in Mojave at Route 395 (near Little lake) and in Barstow at Route 127 (near Baker).[1] Therefore, while SR 58 has areas determined to be of scenic value, there are no officially designated scenic resources within the Project's vicinity. Therefore, the Project would have no impact on scenic resources such as trees and rock outcroppings, historic buildings, or state scenic highways.

Mitigation Measures

No mitigation is warranted.

I-c) 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 points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

c) Less Than Significant Impact. Pursuant to definition provided in PRC Section 21071, the Project is in a rural area. Due to the site's topography and location, there are no publicly accessible vantage points from the Project site. However, the City of Tehachapi's General Plan policies prohibit walls from blocking views of,

[1] (Caltrans, 2020)

or access into, natural areas and apply standards that reflect the intended physical context of its neighborhoods (Policy NR-32). Impacts of the Project would therefore be considered less than significant.

Mitigation Measures

No mitigation is warranted.

I-d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

d) Less Than Significant Impact. Development of the site will introduce new sources of light and glare. The site is within a non-urbanized area; however, the area has existing sources of light and glare. Lighting sources within the Project's vicinity provide for direction and security, as well as contributing visually to the developing landscape. Existing light sources within the Project's vicinity currently affect day and nighttime views in the Project area to a degree equal to or greater than the light sources proposed by the Project. The Pursuant to the General Plan policies, the City of Tehachapi adheres to dark sky protocols in its review of new developments and requires that outdoor lighting not create or worsen incompatible situations. Therefore, lighting proposed by the Project will be reviewed to ensure compatibility with surrounding uses. Accordingly, new sources of light and glare generated by the Project would be consistent with existing lighting in the area and would be considered less than significant new sources of light and glare.

Mitigation Measures

No mitigation is warranted.

3.3 Agriculture and Forestry Resources

Agriculture and Forest Resources				
Would the project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.3.1 Environmental Setting and Baseline Conditions

The portions of the Project site proposed for the construction of the Project are currently vacant graded land that is not in agriculture production. A review of Kern County crop history reports indicates that the site was permitted for a field crop briefly in 2016. The site was not in agriculture production during the five years that preceded 2016, nor since 2016.[2]

[2] (County of Kern, Agriculture and Measurements Standards, 2020)

3.3.2 Methodology

Farmland Mapping and Monitoring Program (FMMP)

The FMMP produces maps and statistical data used for analyzing impacts to California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance.

The California Department of Conservation's (DOC) 2012 FMMP is a non-regulatory program that produces "Important Farmland" maps and statistical data used for analyzing impacts on California's agricultural resources. The Important Farmland maps identify eight land use categories. In accordance with Public Resources Code Section 21060.1, five of the land use categories are considered agriculture land: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and grazing land. The FMMP rates lands according to soil quality and irrigation status.

The subject property is primarily designated as Grazing Land by the FMMP, with a small percentage of Rural Residential designation along the southern boundary as illustrated on **Figure 3-1**. The DOC's explanations for the Grazing Land designation is summarized as:[3]

- GRAZING LAND (G): Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

3.3.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to protection of the aesthetic value of the City. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Economic Vitality Element

Policy EV-18: The unincorporated lands within Tehachapi's Sphere of Influence can serve as an agricultural reserve for the town providing a needed transition between the town itself and adjacent unincorporated land uses. Land uses that are compatible with agricultural activities should be the primary economic use for this area. Over time, if portions of this reserve are annexed to town, policies governing land use will apply in the same manner as in the district to which the portions are being attached. Examples of beneficial land uses that are to be encouraged in the reserve area are:

- Packing facilities;
- Agricultural production;
- Agricultural storage;
- Eco/Agri-tourism and "value added" agricultural uses.

[3] (California Department of Conservation, 2019)

Natural Resources Element

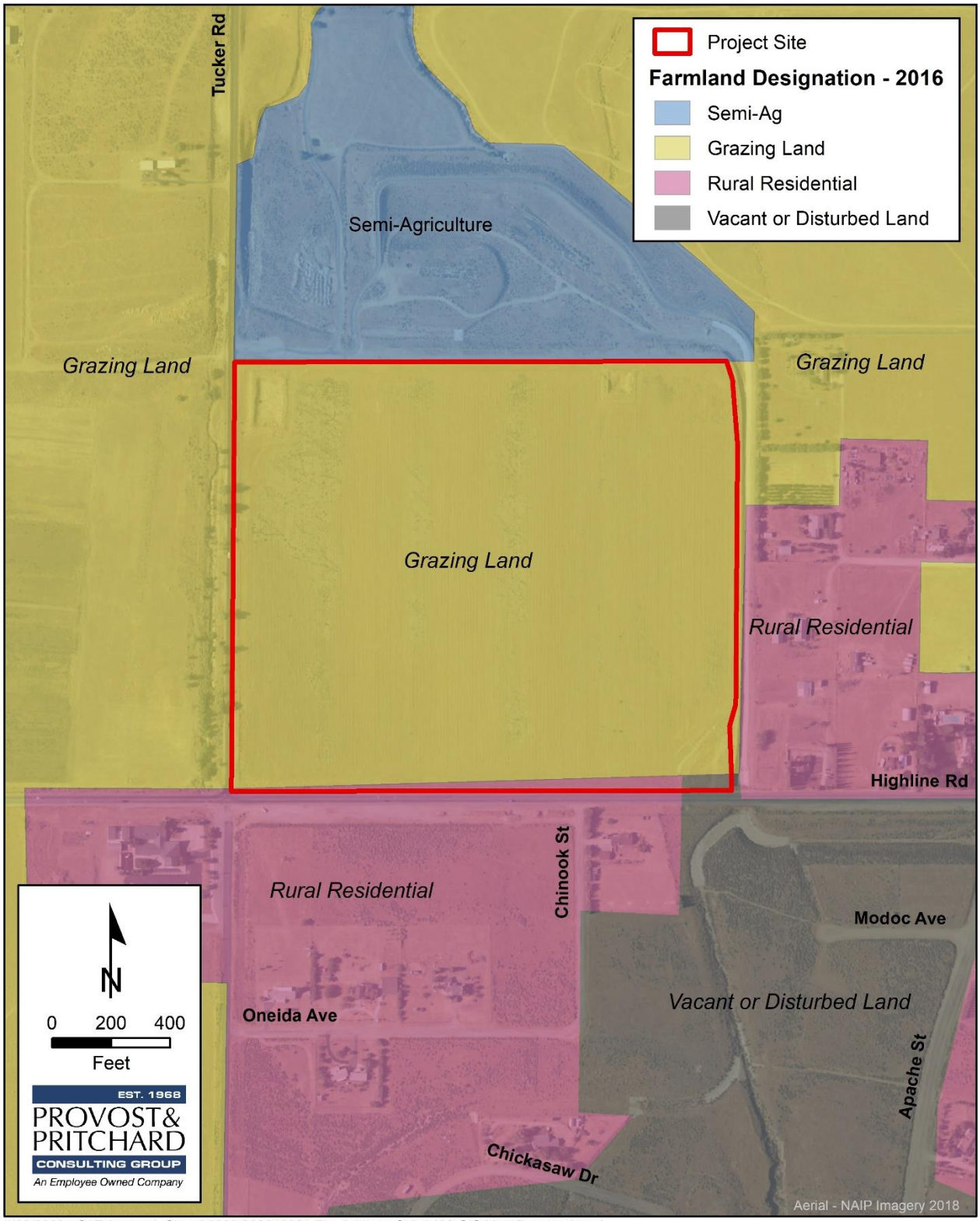
Policy NR-11 Support the economic viability of agriculture by maintaining a compatible relationship with agricultural operations pursuant to the Greater Tehachapi Specific Plan,

Policy NR-13 In cooperation with Kern County, other public agencies and property owners, seek to preserve open space through preservation-incentives, conservation, easements, land acquisition, or other appropriate measures,

Policy NR-17 Within the greenbelt or in addition to it, maintain a looped system of greenways that provide community access to a rural network of community open space,

Policy NR-18. Work with Kern County to maintain a diverse network of open land encompassing particularly valuable rural and agricultural resources, connected with the landscape around the urban area. Particularly valuable resources include but are not limited to the following:

- Undeveloped land within the Sphere of Influence not intended for urban uses;
- Prime agricultural soils and economically viable farmland (see Objective 2).



4/29/2020 : G:\Tehachapi City of-2233\223319001-The Address Subd\400 GIS\Map\Farmland.mxd

Figure 3-1 Farmland Designation Map

3.3.3 Impact Assessment

II-a) 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?

a) No Impact. FMMP farmland designations are shown in **Figure 3-1.** The Project site is primarily designated Grazing Land. As the Project site is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), the Project would have no impact.

Mitigation Measures

No mitigation is warranted.

II-b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

b) No Impact. The subject property is zoned for residential use and is not subject to a Williamson Act agricultural land conservation contract. Therefore, the proposed Project on the subject site will not affect existing agriculturally zoned or Williamson Act contract parcels.

Mitigation Measures

No mitigation is warranted.

II-c) 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))?

II-d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

c and d) No Impact. The Project is zoned for residential use and is not within the vicinity of a forest 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)). Therefore, the Project will not conflict with existing zoning for, or cause rezoning of, forest land nor result in the loss of forest land or conversion of forest land to non-forest use.

Mitigation Measures

No mitigation is warranted.

II-e) 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?

e) No Impact. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance or land under Williamson Act contracts occurs in the Project area and the site is planned for urban development. The Project is located in an area that is planned for residential uses and there are no agricultural lands surrounding the site; as such, the proposed Project does not have the potential to result in the conversion of Farmland to non-agricultural uses or forestland uses to non-forestland. Therefore, there would be no impact.

Mitigation Measures

No mitigation is warranted.

3.4 Air Quality

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

3.4.1 Environmental Setting and Baseline Conditions

The Project is located in the Kern River/Cummings Valley portion of the Mojave Air Basin under the jurisdiction of the East Kern Air Pollution Control District (EKAPCD).

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, non-attainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "non-attainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the non-attainment designation can be further classified as serious non-attainment, severe non-attainment, or extreme non-attainment, with extreme non-attainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or non-attainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The Environmental Protection Agency (EPA) designates areas for ozone, Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2) as "does not meet the primary standards," "cannot be classified," or "better than national standards." For Sulfur Dioxide (SO_2), areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the CARB terminology of attainment, non-attainment, and unclassified is more frequently used. The EPA uses the same sub-categories for non-attainment status: serious, severe, and extreme. In 1991, EPA assigned new non-attainment designations to areas that had previously been classified as Group I, II, or III

for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

The State and national attainment status designations pertaining to the EKAPCD are summarized in **Table 3-1.** The EKAPCD is currently designated as a non-attainment area with respect to the State 1-hour and 8-hour ozone standards, and PM_{10} standard. The air basin is in attainment for all other State standards.

The air basin is in serious non-attainment for the National Ambient Air Quality Standards (NAAQS), 8-hour ozone standard, however, the District expects the air basin to be changed to attainment status for the 8-hour ozone standard in 2020. The air basin is also in serious non-attainment for the NAAQS, PM_{10} standard. The air basin is in attainment for all other national standards.

Table 3-1 Summary of Ambient Air Quality Standards and Attainment Designation

Summary of Ambient Air Quality Standards & Attainment Designation[4]					
Pollutant	Averaging Time	California Standards		National Standards[2]	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm	Nonattainment	–	Attainment[3,4]
	8-hour[5]	0.070 ppm	Nonattainment	0.075 ppm	Serious Nonattainment
Particulate Matter (PM_{10})	AAM	20 µg/m^3	Nonattainment[1,2]	–	Unclassifiable/ Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Unclassified	12 µg/m^3	Unclassifiable/ Attainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Unclassified	35 ppm	Unclassifiable/ Attainment
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		–	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	53 ppb	Unclassified
	1-hour	0.18 ppm		100 ppb	
Sulfur Dioxide (SO_2)	AAM	–	Attainment	--	Unclassified
	24-hour	0.04 ppm		--	
	3-hour	–		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead Particulates (Pb)	30-day Average	1.5 µg/m^3	Attainment	–	Unclassifiable/ Attainment
	Calendar Quarter	–		--	
	Rolling 3-Month Average	–		0.15 µg/m^3	

1 Kern River Valley, Bear Valley, and Cummings Valley were previously included in the federally designated San Joaquin Valley PM10 Serious Nonattainment Area, but were made a separate nonattainment area in 2008
2 Kern River Valley, Bear Valley, and Cummings Valley are included in EKAPCD for all NAAQS other than PM10.
Source: CARB 2019; EKAPCD 2018
3 1-hour ozone NAAQS was revoked effective June 15, 2004.
4 EKAPCD was in attainment for 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date was June 21, 2004, therefore it did not become effective.
5 Attainment for 1997 8-hour Ozone NAAQS (0.08 ppm), Serious Nonattainment for 2008 NAAQS (0.075ppm) expected to attain in 2020, and Nonattainment State 8-hour standard (0.070ppm).

3.4.2 Methodology

Determinations in this Air Quality Impact assessment rely on emissions as modeled using the California Air Pollution Control Officers Association's California Emission Estimator Model (CalEEMod), Version 2016.3.2 (**Appendix A**). The sections below rely on the emissions modeling to reach conclusions and/or

[4] (East Kern Air Pollution Control District, 2020), attainment status verified by Miguel Sandoval, engineer with EKAPCD on February 21, 2020.

make recommendations and determinations. Determinations consider the East Kern Air District's established thresholds of significance and adopted rules, and applicable Tehachapi General Plan policies as described below. Construction of the Project is expected to occur over approximately 11 years in up to 11 phases beginning in September 2020 ending in September 2030 as listed below in **Table 3-3.**

3.4.2.1 Air District Established Significance Thresholds

The EKAPCD, which was formerly known as Kern County APCD, adopted its *Guidelines for Implementation of the California Environmental Quality Act of 1970* (the Act)*, as Amended* to set forth the District's definitions, procedures and forms used in implementation of the Act.[5] The District's guidelines state that a proposed project is determined to not have significant air quality impacts if operation of the project will:

1. Emit (from all project sources subject to KCAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3. of KCAPCD's Rule 210.1 (New and Modified Source Review Rule);
2. Emit less than 137 pounds per day of NO_X or Reactive Organic Compounds from motor vehicle trips (indirect sources only);
3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard;
4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board; and
5. Be consistent with adopted federal and State Air Quality Attainment Plans.

To assist local jurisdictions in the evaluation of air quality impacts, the EKAPCD established thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts.[6] Accordingly, the recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized as follows:

Table 3-2 EKAPCD - Air Quality Thresholds of Significance

EKAPCD - Air Quality Thresholds of Significance		
Pollutant/Precursor	Construction Emissions	Operational Emissions
	Emissions (tpy)	Emissions (tpy)
CO	N/A	N/A
NO_X	25	25
ROG	25	25
SO_X	27	27
PM_{10}	15	15
$PM_{2.5}$	N/A	N/A

3.4.2.2 Applicable Air District Rules

RULE 208.2 Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act)

I. Purpose of Rule

[5] (Kern County Air Pollution Control District, 1999)
[6] Significance thresholds are found in EKAPCD Rule 210.1, Subsection III.B.3.a.

This Rule establishes criteria by which a project under review by KCAPCD can be found to have no potential for causing a significant environmental impact, and, thus, be granted a general rule exemption[7] pursuant to Section 15061(b)(3) of the State CEQA Guidelines.

II. Criteria For Authorities to Construct

Pursuant to Section 15061(b)(3) of the State CEQA Guidelines, an activity is not subject to CEQA if it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment.

For purposes of determining which proposed projects reviewed by the Air Pollution Control Officer have no potential to cause a significant effect on the environment, a new or modified emissions unit (as defined in Rule 210.1, Subsection II.L.) at a facility shall be found to have no potential for causing a significant effect on the environment if the new or modified emissions unit meets all of the following requirements:

A. All answers to the KCAPCD "Environmental Information Form and Initial Study Evaluation" (see Appendix A) are "No";

B. The proposed new or modified emissions unit will comply with all applicable requirements and limits established in Regulation IV of the Kern County Air Pollution Control District Rules and Regulations, and all provisions of state and federal law and regulations which the Kern County Air Pollution Control District has authority to enforce; C. Expected emissions from the proposed new or modified emissions unit are calculated using:

1. Standardized emission factors from published CARB or U.S. EPA sources;

2. Source tests for the same or similar facilities conducted in accordance with CARB or U.S. EPA test methods;

3. Recognized formulas from published engineering and scientific handbooks, material safety data sheets, or other similar published literature;

4. Manufacturer's guarantees; and/or

5. Other fixed standards.

Note: remaining information contained in Rule 208.2 is not applicable to residential projects.

RULE 210.1 New and Modified Stationary Source Review (NSR)

A. Rule Purposes: The purposes of this Rule are to:

1. Provide for preconstruction review of new and modified stationary sources of affected pollutants to insure (*sic*) emissions will not interfere with attainment of ambient air quality standards;

[7] Note: CEQA Guidelines has changed this exemption from "general rule" to "common sense" exemption.

2. Insure [*sic*] appropriate new and modified sources of affected pollutants are constructed with Best Available Control Technology; and

3. Provide for no significant net increase in emissions from new and modified stationary sources for all non-attainment pollutants and their precursors.

B. Applicability: This Rule shall apply to all new stationary sources and all modifications to existing stationary sources subject to Rule 210.1 (Permits Required).

Note: Rule 210.1 provides definitions, establishes the significance thresholds provided in **Table 3-2**, and states, "Emissions from a new or modified stationary source shall not make worse an exceedance of an ambient air quality standard. In making this determination the Control Officer shall take into account increases in cargo carrier and secondary emissions and offsets provided pursuant to this Rule. Modeling used for purposes of this Rule shall be consistent with requirements of the most recent edition of U.S. EPA's "Guideline on Air Quality Models" unless the Control Officer finds such models are inappropriate for use. After making such finding, the Control Officer may designate an alternative model only after public comment and written concurrence of CARB, and U.S. EPA."

3.4.2.3 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to its efforts to improve air quality. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Natural Resources Element

Policy NR-1. Require planting of trees along all rights-of-way and within open space per the following:
a. Identify and use trees that are consistent with the local climate and water availability;
b. Maintain specifications for tree-spacing, size, quantity and planting,

Policy NR-2. Take affirmative steps toward reduction of motor vehicle-related air pollution including, but not limited to, the following:

a. Require land use and transportation strategies that promote use of alternatives to the automobile for transportation, including walking, bicycling, bus transit and carpooling;

b. Encourage the development of alternative fuel stations;

f. Evaluate alternative traffic control devices such as roundabouts that slow automobiles rather than devices such as traffic signals and stop signs which make automobiles start and stop.

Policy NR-3. Reduce emissions for stationary point sources of air pollution (e.g., equipment at commercial and industrial facilities) and stationary area sources (e.g., wood-burning fireplaces & gas powered lawn mowers) which cumulatively, represent large quantities of emissions.

a. Work with the Air Quality Management District to achieve emission-reductions for non-attainment pollutants including carbon monoxide, ozone and PM-10;

b. Apply the California Environmental Quality Act (CEQA) to evaluate and mitigate the local and cumulative effects of new development on air quality.

Policy NR-4. Reduce emissions from residential and commercial uses:

a. Require new development and/or renovations of existing buildings to incorporate the following as applicable:

- High-efficiency heating and appliances such as cooking equipment, refrigerators, and furnaces and low NOx water heaters;
- Comply with or exceed the requirements of Title 24;
- Passive solar building and landscape design: building and/or private open space orientation in a south to southeast direction, planting of deciduous trees on west and south sides of buildings, drought-resistant landscaping;
- Use of pervious paving and groundcover;
- Encourage use of battery-powered, electric, or other similar zero-emission equipment;
- Provide natural gas connections to fireplaces or require EPA certified wood stoves, pellet stoves, or fireplace *inserts*.

b. Require that contractors include, in construction contracts, the following requirements, consistent with the East Kern District's Regulations:

- Maintain construction equipment engines in good condition and in proper tune per manufacturer's specification for the duration of construction;
- Minimize idling time of construction-related and/or, heavy duty equipment, motor vehicles, and portable equipment;
- Use alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas and unleaded gasoline);
- Use 'add-on' control devices such as diesel oxidation, catalysts or particulate filters;
- Use diesel equipment that meets the Air Quality Management District's certification standard for off-road heavy-duty diesel engines;
- Limit construction hours/hours of operation of heavy-duty equipment;
- Include buffer zones within new residential and sensitive receptors to separate those uses from potential sources of odors, dust from agricultural uses, and stationary sources of toxic air contaminants.

3.4.3 Impact Assessment

3.4.3.1 Short-Term Construction-Generated Emissions

Table 3-3 Short-Term - Construction-Generated Emissions of Criteria Air Pollutants – The Address Subdivision

Short-Term Construction-Generated Emissions of Criteria Air Pollutants- The Address Subdivision (Unmitigated)					
	Annual Emissions (Tons/Year) (1)				
Source	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Year 2020 – All Phases Under Construction	0.1072	1.0306	0.7645	0.0013	0.2156
Year 2021 – All Phases Under Construction	0.9020	**2.6346**	2.3870	0.0040	**0.3085**
Year 2022– All Phases Under Construction	0.8989	2.3343	2.3477	0.0040	0.2867
Year 2023– All Phases Under Construction	0.9053	2.1162	2.3162	0.0040	0.2695
Year 2024– All Phases Under Construction	**1.3842**	1.8331	2.2130	**0.0119**	0.1662
Year 2025– All Phases Under Construction	0.0230	0.2192	0.2268	0.0043	0.0819
Year 2026– All Phases Under Construction	0.7462	2.1783	**2.7747**	0.0048	0.1753
Year 2027– All Phases Under Construction	1.1958	1.9297	2.3729	0.0080	0.3060
Year 2028– All Phases Under Construction	0.5228	1.8305	2.2607	0z.0117	0.1806
Year 2029– All Phases Under Construction	1.2572	1.8484	2.2922	0.0060	0.2507
Year 2030– All Phases Under Construction	0.8107	0.8096	1.6397	0.0032	0.0265
Highest Construction Emissions Any Year	***1.3842***	***2.6346***	***2.7747***	***0.0119***	***0.3085***
EKAPCD Significance Thresholds:	***10***	***10***	***100***	***15***	***15***
Exceed EKAPCD Thresholds?	***No***	***No***	***No***	***No***	***No***

Long-Term - Operational Emissions

Operational emissions occur over the lifetime of the Project and are from three main sources: area sources, energy usage, and motor vehicles usage known as mobile sources. Area source emissions include emissions from natural gas, landscape, and painting. First occupancy of the Project is expected as early as July 2021 and was used as the Project buildout modeling year for the subdivision as a conservative assumption. The EKAPCD considers construction and operational assumptions separately when making significance determinations. Modeling assumptions and output files are included in **Appendix A.** Both unmitigated and mitigated long-term operational emissions for the Project are listed in **Table 3-4**. Mitigation measures consistent with Tehachapi General Plan policies that are included in modeling assumptions include: 1) requiring at least 20% of residences to be constructed with only natural gas fireplaces (note: the remaining 80% would be unrestricted); 2) requiring construction within all phases of the subdivision to exceed Title 24 Energy requirements by 25%; 3) Requiring the use of at least 25% high efficiency lighting within the subdivision; and 4) requiring the use of low volatile organic compound (VOC) paint for construction.

Table 3-4 Long-Term - Operational Emissions – *The Address Subdivision*

Long-Term Operational Emissions of Criteria Air Pollutants- The Address Subdivision[8]						
Source	Operational Emissions (Tons/Year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area- Unmitigated	17.26	0.28	20.15	0.03	2.30	2.58
Energy- Unmitigated	*0.04*	*0.58*	*0.13*	*0.02*	*0.03*	*0.03*
Mobile- Unmitigated	*0.65*	*5.98*	*6.86*	*0.04*	*2.45*	*1.17*
Total All Operational Emissions	***17.95***	***6.84***	***27.14***	***0.09***	***4.78***	***3.78***
EKAPCD Significance Thresholds:	*25*	*25*	*N/A*	*27*	*15*	*N/A*
Exceed EKAPCD Thresholds?	***No***	***No***	***No***	***N/A***	***No***	***No***
Area- Mitigated	14.44	0.28	16.64	0.03	2.10	2.10
Energy- Mitigated	0.03	0.27	0.10	0.00	0.02	0.02
Mobile- Mitigated	0.65	5.95	6.85	0.04	2.26	1.12
Total All Mitigated Operational Emissions	***15.11***	***6.50***	***23.59***	***0.06***	***4.37***	***3.24***
EKAPCD Significance Thresholds:	*25*	*25*	*N/A*	*27*	*15*	*N/A*
Exceed EKAPCD Thresholds?	***No***	***No***	***N/A***	***N/A***	***No***	***No***

III-a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

a) Less Than Significant Impact. The CEQA Guidelines indicate that a significant impact would occur if the Project would conflict with or obstruct implementation of the applicable air quality plan. EKAPCD does not provide specific guidance on analyzing conformity with the Air Quality Plan (AQP). Therefore, this analysis assumes the following criteria for determining Project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified by the EKAPCD for regional and local air pollutants.
2. Will the project comply with applicable control measures in the AQPs? (The primary control measures applicable to development projects is Rule 210.1.)

Regional air quality impacts and attainment of standards are the result of cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the Project is based on its cumulative contribution. The air basin is in non-attainment status for the California standards for ozone (1-hr and 8-hr) and PM_{10}. The air basin is in serious nonattainment for the national standard for ozone (8-hr) and PM_{10}. Therefore, if Project generated emissions of either of the ozone precursor pollutants (ROG or No_x) or Project generated PM_{10} or $PM_{2.5}$ were to exceed the EKAPCD's significance thresholds, the Project would be considered to contribute to violations of the applicable standards and would conflict with the AQPs. As demonstrated in **Table 3-3** for Project construction generated emissions and in **Table 3-4** for

[8] Appendix A

long-term operational emissions, the unmitigated emissions generated by the Project during both construction and operation are below EKAPCD's established significance thresholds. Therefore, the Project will not contribute to air quality violations in conflict with attainment plans.

The AQP contains a number of control measures, including *Rule 208.2* Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act) and *Rule 210.1* New and Modified Stationary Source Review. Rule 208.2 states that a project can be found to have no potential to cause a significant environmental impact if it meets specified criteria as listed above. *Rule 210.1* establishes permit conditions and sets forth the thresholds of significance by which projects are evaluated. These adopted rules and regulations constitute enforceable requirements with which the project must comply. In addition, imposition of City General Plan policies found in Natural Resources Policy, NR-4 adopted for purposes of reducing emissions will contribute further reductions that were not quantified in the Project's CalEEMod modeling. In consideration of these factors, the Project, without mitigation, would comply with all applicable EKAPCD rules and regulations. Therefore, the Project complies with the criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plans.

Mitigation Measures

No mitigation is warranted.

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

b) Less Than Significant Impact. To result in a less than significant impact, the following criteria must be true:

1. Regional analysis: emission of non-attainment pollutants must be below the EKAPCD's regional significance thresholds.
2. Summary of projections: the project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.
3. Cumulative health impacts: the project must result in less than significant cumulative health effects from the non-attainment pollutants. This approach correlates the significance of the regional analysis with health effects.

As discussed in Item III-a, the Project-generated emissions are below the EKAPCD's regional significance thresholds and the Project is consistent with current air quality attainment plans including control measures and regulations.

With respect to cumulative health impacts, the air basin is in non-attainment or serious nonattainment for ozone and PM_{10}, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and persons with pre-existing respiratory or cardiovascular illnesses (the infirm)). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience adverse health effects. Since the air basin is already in non-attainment for these constituents, it is considered to have an existing significant cumulative health impact without the Project. The issue is whether the Project's contribution to the existing violation of air quality standards is cumulatively considerable.

This analysis considered the reasonably foreseeable future projects as listed in **Table 2-2.** The EKAPCD has determined that projects that exceed regional thresholds would have a cumulatively considerable health impact. As demonstrated in **Table 3-3** for construction generated emissions, and in **Table 3-4** for Project operational emissions, the project would not exceed the EKAPCD's significance thresholds. Therefore, in accordance with EKAPCD policy the Project's cumulatively considerable impacts would be less than significant.

III-c) Would the project expose sensitive receptors to substantial pollutant concentrations?

c) Less Than Significant Impact. Sensitive receptors are those who are sensitive to air pollution, including children, the elderly, and the infirm. The EKAPCD considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The closest existing off-site sensitive receptors are single-family homes located on adjacent properties. Tompkins Elementary School, a sensitive receptor, is located approximately 0.82 miles northeast of the Project. As a residential land use development project, proposed residences included as part of the Project would also be considered sensitive receptors once occupied.

As demonstrated in **Table 3-3** and **Table 3-4**, the Project would not exceed the EKAPCD's thresholds established in accordance with health-based standard for determining significance of criteria pollutant emissions. Therefore, in accordance with these standards, the Project would have a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations.

Mitigation Measures

No mitigation is warranted.

III-d) Would the project result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

d) No Impact. The Project is not considered to be odor producing. Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roaster, asphalt batch plants, and rendering plants, among other uses. The Project does not include any of these activities or land uses. CEQA does not require an analysis of the location of sensitive receptors in the vicinity of existing adverse conditions, therefore no discussion of existing uses is warranted.[9] The Project would therefore have no impact with respect to generation of emissions leading to odors or other adverse or objectionable emissions.

Mitigation Measures

No mitigation is warranted.

[9] (California Building Industry Association v. Bay Area Air Quality Management District, 2015)

3.5 Biological Resources

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

3.5.1 Environmental Setting and Baseline Conditions

The Project site is a completely disturbed field with features and soil signatures indicative of historic agricultural use. Historic land use of the Project site has converted all conditions such that no natural plant communities are present. Vegetation within the Project site is considered completely disturbed.

3.5.2 Methodology

MESA Biological, LLC (Mesa Biological), prepared a Biological Resource and Habitat Characterization (Biological Report) of the Project dated March 1, 2020 (**Appendix B**) The methods used for the literature review and biological reconnaissance survey, and results of field surveys are presented below and further detailed in the Biological Report.

Biological Reconnaissance Survey: Field surveys were conducted by biological staff experienced and knowledgeable with regionally occurring animal and plant species, natural communities, and field survey methodologies to assess a field setting for presence of biological resources. The surveys documented natural communities, vegetation communities, sign or presence of sensitive habitats, and documentation of land use and pre-existing disturbance. Pedestrian, vehicle, and focused surveys were intuitively controlled to ensure thorough biological documentation of the Project site and its surroundings lands.

Literature Review: Prior to conducting the field surveys the biologist reviewed historic and recent aerial imagery and online surveys and databases which included: the U.S. Fish and Wildlife (USFWS) Information for Planning and Consultation database; and the California Department of Fish and Wildlife (CDFW) - California Natural Diversity Database (CNDDB). The surveys and database searches contained the entire Project site and the respective USGS, 7.5 Minute Quadrangle (Tehachapi South) and the surrounding eight quadrangles (Keene, Tehachapi North, Tehachapi Northeast, Monolith, Willow Springs, Tylerhorse Canyon, Liebre Twins, and Cummings Mountain).

Field Survey Results: The ecological conditions of the site are consistent with fallow field, dominated by nonnative vegetation. No intact habitat was present. No native lands were present. Two artificial ponds were present along the northern limits of the Project. The artificial ponds were completely dry at the time of the survey. Bermed edges of the artificial ponds contained vegetation consistent with upland growth conditions.

Terrestrial wildlife at the Project site was considered generally absent throughout much of the site. No protected animals were observed on the Project site and no sign was present that would indicate use or occupation, recent or historical, by any protected animal taxa.

The size and condition of the trees on the Project site were determined by field surveys to represent limited nesting structure and generally not suitable for many of the protected avian species in the region. No ground nesting was observed. Lands surrounding the Project site contain habitat suitable for nesting and roosting of certain listed birds, including raptors and other species with broad ranging foraging habitats.

The resultant species, and their potential to occur within the Project area are listed in **Table 3-5** through **Table 3-8,** beginning on the following page. Explanation of designations and status codes found in the tables are as follows:

EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES

Present:	Species observed on the site at time of field surveys or during recent past
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis
Possible:	Species not observed on the site, but it could occur there from time to time
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
Absent:	Species not observed on the site, and precluded from occurring there due to absence of suitable habitat

STATUS CODES

Federal	**State**
E…….Endangered	E…….Endangered
T…….Threatened	T…….Threatened
DL……..Delisted due to recovery	SSC…….Species of Special Concern
	FP……...Fully Protected
	CE……...Candidate Endangered
	DL……..Delisted due to recovery

California Rare Plant Rank

1B.1	Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2	Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3	Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
2B.2	Plants rare, threatened, or endangered in California but more common elsewhere

Table 3-5 List of Federal and/or State Protected Status of Known Plant Species in the Project Vicinity

List of Federal and/or State Protected Status of Known Plant Species in the Project Vicinity[10]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status/ Rank**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Mt. Pinos onion *(Allium howellii var. clokeyi)*	None	1B.3	Meadows and seeps (edges), pinyon and juniper woodland, Great Basin scrub. 1,300-1,850m.	Absent. No suitable habitat present
Spanish Needle onion (*Allium shevockii*)	None	1B.3	Upper montane coniferous forests, Pinyon and juniper woodlands, rocky outcrops. 850-2,500 m.	Absent. No suitable habitat present
Horn's milk-vetch (*Astragalus hornii var. hornii)*	None	1B.1	Meadows and seeps, lake margins, Playas, alkaline soils. 60-850 m.	Absent. No suitable habitat present
Palmer's mariposa-lily (*Calochortus palmeri var. palmeri)*	None	1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 1,000-2,390 m.	Absent. No suitable habitat present
Alkali mariposa-lily (*Calochortus striatus)*	None	1B.2	Moist creosote-bush scrub, Chenopod scrub, Chaparral, alkaline meadows and seeps. 70-1,595 m.	Absent. No suitable habitat present
Calico monkeyflower (*Diplacus pictus)*	None	1B.2	Broad leafed upland forest, cismontane woodland. In bare ground around gooseberry bushes or around granite rock outcrops. 100-1,430 m.	Absent. No suitable habitat present
Kern buckwheat (*Eriogonum kennedyi var. pinicola)*	None	1B.1	Chaparrals, Piyon and juniper woodlands, clay soils. 1,340-1,950 m.	Absent. No suitable habitat present
Fort Tejon woolly sunflower *(Eriophyllum lanatum var. hallii)*	None	1B.1	Cismontane woodlands and chaparrals. 1,065-1,500 m.	Absent. No suitable habitat present
Tejon poppy *(Eschscholzia lemmonii ssp. kernensis)*	None	1B.1	Chenopod scrublands and Valley and foothill grasslands; open areas. 160-1,000 m.	Absent. No suitable habitat present
Greenhorn fritillary (*Fritillaria brandegeei)*	None	1B.3	Lower montane coniferous forests, around granite rock outcrops. 1,330-2,100 m.	Absent. No suitable habitat present
Coulter's goldfields *(Lasthenia glabrata ssp. coulteri)*	None	1B.1	Playas, marshes and swampy areas, common around vernal pools. 1-1,220 m.	Absent. No suitable habitat present
Pale-yellow layia *(Layia heterotricha)*	None	1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Alkaline or clay soils; open areas. 90-1,800 m.	Absent. No suitable habitat present
Madera leptosiphon (*Leptosiphon serrulatus)*	None	1B.2	Lower montane coniferous forests, cismontane woodlands. 300-1,300 m.	Absent. No suitable habitat present
Sagebrush loeflingia (*Loeflingia squarrosa var. artemisiarum)*	None	2B.2	Great Basin scrublands, Sonoran Desert scrublands, desert dunes; sandy soils. 700-1,615 m.	Absent. No suitable habitat present
Peirson's lupine (*Lupinus peirsonii)*	None	1B.3	Joshua tree woodland, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Rocky or gravelly soils. 1,000-2,500 m.	Absent. No suitable habitat present

[10] (MESA Biological, LLC, March 30, 2020)

List of Federal and/or State Protected Status of Known Plant Species in the Project Vicinity[10]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status/ Rank**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Tehachapi monardella (*Monardella linoides ssp. Oblonga)*	None	1B.3	Lower montane coniferous forest, upper montane coniferous forest, pinyon-juniper woodland. On dry slopes of yellow pine forest, decomposed granitic soils; in roadside disturbed areas 900-2,470 m.	Absent. No suitable habitat present
Aparejo grass (*Muhlenbergia utilis)*	None	1B.2	Moist areas along streams and ponds. 250-1,000 m.	Absent. No suitable habitat present
Baja navarretia (*Navarretia peninsularis)*	None		Meadows and seeps, lower montane coniferous forests, chaparral; open areas, pinyon and juniper woodlands. Mesic areas. 1,500-2,300 m.	Absent. No suitable habitat present
Piute Mountains navarretia *(Navarretia setiloba)*	None	1B.1	Cismontane woodlands, Pinyon and juniper woodlands, and Valley and foothill grasslands; open areas. Clay and gravelly loam soils. 285-2,100 m.	Absent. No suitable habitat present
Spjut's bristle moss (*Orthotrichum spjutii)*	None	1B.3	Lower montane coniferous forests, pinyon and juniper woodlands, subalpine coniferous forests and upper montane coniferous forests. Found near granite outcrops. 2,100-2,400 m.	Absent. No suitable habitat present
Robbins' nemacladus (*Nemacladus secundiflorus var. robbinsii)*	Endangered	1B.2	Open areas, valley and foothill grasslands, chaparrals. 350-1,700 m.	Absent. No suitable habitat present
Bakersfield cactus (*Opuntia basilaris var. treleasei)*	None	E, 1B.1	Cismontane woodlands, valley and foothill grasslands, chenopod scrublands. Sandy or gravelly soils. 120-1,450 m.	Absent. No suitable habitat present
Latimer's woodland-gilia (*Saltugilia latimerid)*	None	1B.2	Mojavean desert scrub, pinyon and juniper woodlands, chaparrals. Found near granite outcrops, in rocky or sandy soils; washes. 400-1,900 m.	Absent. No suitable habitat present
Piute Mountains jewelflower (*Streptanthus cordatus var. piutensis)*	None	1B.2	Broadleafed upland forests, closed-cone coniferous forests, pinyon and juniper woodlands. Clay or metamorphic soils. 1,095-1,825 m.	Absent. No suitable habitat present
Piute Mountains triteleia *(Triteleia piutensis)*	None	1B.1	Pinyon and juniper woodlands. Open areas with fine volcanic soil, scattered boulders or heavy clay soil with volcanic hardpan. 1,585-1,655 m.	Absent. No suitable habitat present
Grey-leaved violet (*Viola pinetorum ssp. grisea)*	None	1B.2	Subalpine coniferous forest, upper montane coniferous forest, meadows and seeps. Dry mountain peaks and slopes. 1,500-3,400 m.	Absent. No suitable habitat present

Table 3-6 List of Federal and/or State Protected Status of Known Mammal Species in the Project Vicinity

List of Federal and/or State Protected Status of Known Mammal Species in the Project Vicinity[11]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Western red bat (*Lasiurus blossevillii)*	None	SSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Unlikely. No suitable roosting habitat. May occasionally forage.
Tulare grasshopper mouse *(Onychomys torridus tularensis)*	None	SSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Diet almost exclusively composed of arthropods, therefore needs abundant supply of insects.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.
Tehachapi pocket mouse *Perognathus alticola inexpectatus*	None	SSC	Arid annual grassland and desert shrub communities, but also taken in fallow grain field and in Russian thistle. Burrows for cover and nesting. Estivates and hibernates during extreme weather. Forages on open ground and under shrubs.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.
American badger *Taxidea taxus*	None	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.

Table 3-7 List of Federal and/or State Protected Status of Known Bird Species in the Project Vicinity

List of Federal and/or State Protected Status of Known Bird Species in the Project Vicinity[12]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Tricolored blackbird (*Agelaius tricolor)*	None	T	Cattail marshes, marshy meadows, and rangelands.	Unlikely. No suitable nesting habitat. May occasionally forage.
Golden eagle *(Aquila chrysaetos)*	FP	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliffs, rocky outcrops and large trees provide nesting habitat.	Unlikely. No suitable nesting habitat. May occasionally forage.
Long-eared owl *(Asio otus)*	None	SSC	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations.	Unlikely. No suitable nesting habitat. May occasionally forage.
Burrowing owl *(Athene cunicularia)*	None	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Moderate. Suitable nesting habitat present. May occasionally forage.
Swainson's hawk (*Buteo swainsoni)*	None	T	The range of the Swanson Hawk overlaps the Mojave Desert but is mostly observed near agricultural lands where foraging for small rodents is optimal.	Unlikely. No suitable nesting habitat. May occasionally forage.
Mountain plover (*Charadrius montanus)*	None	SSC	Mountain Plovers are generally found in open, flat, dry tablelands with low, sparse vegetation. Nests are simple scrapes in the ground, which males begin forming soon after their arrival in breeding areas. After eggs are laid, lichen grass roots, leaves and dried chips of cow.	Unlikely. No suitable nesting habitat. May occasionally forage.

[11] (MESA Biological, LLC, March 30, 2020)
[12] (MESA Biological, LLC, March 30, 2020)

List of Federal and/or State Protected Status of Known Bird Species in the Project Vicinity[12]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Northern harrier *(Circus cyaneus)*	None	SSC	Open habitats including freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands, sagebrush flats, desert sinks, fallow fields and agricultural lands.	Unlikely. No suitable nesting habitat. May occasionally forage.
American peregrine falcon *(Falco peregrinus anatum)*	DL	DL	Open habitats near water with granite outcrops, cliffs, steep banks, and ledges for nesting sites. Abundant food source is required (seabirds, waterfowl, pigeons).	Unlikely. No suitable nesting habitat. May occasionally forage.
California condor (*Gymnogyps californianus)*	E	E	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	Unlikely. No suitable nesting habitat. May occasionally forage.
Loggerhead shrike *(Lanius ludovicianus)*	None	SSC	Shrublands, open woodlands with grass cover and bare ground. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Moderate. No suitable nesting habitat. Perches and forage present primarily along fenced margins and where utility poles offer perches.
Yellow warbler (*Setophaga petechia)*	None	SSC	Usually found in riparian deciduous habitats in summer: cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. In migration, visits woodland, forest, and shrub habitats.	Unlikely. No suitable nesting habitat. May occasionally forage.
California Spotted Owl *(Strix occidentalis occidentalis)*	None	SSC	Mixed conifer forests, montane hardwood-conifer, and montane hardwood forests at mid elevations.	Unlikely. No suitable nesting habitat. May occasionally forage.
Le Conte's thrasher (*Toxostoma lecontei)*	None	SSC	Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs. Uses scattered desert shrubs and cactus for cover; frequently saltbush and cholla.	Unlikely. No suitable nesting habitat. May occasionally forage.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus)*	None	SSC	Nests, roosts, and does much foraging in fresh emergent wetland. Also feeds along shorelines and in nearby open fields, preferably on moist ground.	Unlikely. No suitable nesting habitat. May occasionally forage.

Table 3-8 List of Federal and/or State Protected Status of Known Reptile/Amphibian Species in the Project Vicinity

List of Federal and/or State Protected Status of Known Reptile/Amphibian Species in the Project Vicinity[13]				
Common Name *(Scientific Name)*	**Federal Status**	**State Status**	**General and Micro-Habitat**	**Potential to Occur/Rationale**
Northern California legless lizard *(Anniella pulchra)*	None	SSC	The Northern California legless lizard's geographical range includes the Mojave area. Critical habitat features include moisture and loose soils and leaf litter for foraging and burrowing.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.
California legless lizard *(Anniella spp.)*	None	SSC	Common in several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub types. 0-1,800 m.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.
Desert tortoise (*Gopherus agassizii)*	T	T	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with annual wildflower blooms preferred.	Unlikely. Species extant range limited to desert regions east of the foothill range to the south and east of the Site.
Coast horned lizard (*Phrynosoma blainvillii)*	None	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Unlikely. Very limited portions of habitat where soil turnover is less intensive.
Tehachapi slender salamander (*Batrachoseps stebbinsi)*	None	T	Prefers north-facing talus slopes in valley-foothill hardwood-conifer and valley-foothill riparian habitat. Critical habitat features include abundant supply of insects and moist underground niches. 760- 1,500 m.	Unlikely. No suitable habitat present
Foothill yellow-legged frog (*Rana boylii)*	None	SSC	Found in or near rocky streams in a variety of habitats including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types.	Unlikely. No suitable habitat present
Crotch bumble bee *(Bombus crotchii)*	None	CE	Found in grassland and scrub areas, requires hotter and drier environments. Nests underground often in abandoned rodent dens.	Absent. No suitable habitat present

[13] (MESA Biological, LLC, March 30, 2020)

3.5.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies for the preservation of Biological Resources. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Natural Resources Element

Policy NR-18. Work with Kern County to maintain a diverse network of open land encompassing particularly valuable rural and agricultural resources, connected with the landscape around the urban area. Particularly valuable resources include but are not limited to the following:

- Creek and Riparian Corridors, including open channels with natural banks and vegetation;
- Wetlands;
- Undeveloped land within the Sphere of Influence not intended for urban uses;
- Grassland communities and woodlands;
- Wildlife habitat/corridors for the health and mobility of people and wildlife;
- Wildlife habitat;
- Unique plant and wildlife communities.

3.5.3 Impact Assessment

IV-a) 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?

a) Less Than Significant Impact with Mitigation Incorporated.

Project Direct Effects

The Biological Report (**Appendix B**) concluded that the combined effects of disturbance at the Project site, soil turnover, likely application of rodenticides consistent with agricultural sites, and removal of all native habitat features and trees reduces the potential for occupation of protected plant or mammal species. Relative to protected birds, the Biological Report determined the size and condition of trees on the Project site represented limited nesting structure and are generally not suitable for many of the protected avian species in the region. However, the Biological report concluded that burrowing owl and potentially occurring nesting native migratory birds should be anticipated to be present at various times onsite. No ground nesting was observed during site visits. Protected reptile and/or amphibian species were determined to have the potential to inhabit limited portions of the Project site, but the limited numbers with potential would not be expected to occur on the site except as transients.

Project Habitat Modification

Natural conditions at the Project site have been substantially altered and post-settlement conditions have likely eliminated the required habitat components, soil conditions, and hydrological regimes required for most native plants occurring in the vicinity of the Project site. Herbicide application and competitive exclusion by invasive species further reduce the potential for occupation by listed rare plant taxa. It should also be considered that adjacent parcels are unlikely to represent suitable sources for future seeding and repopulation of the Project site. The Biological report determined that botanical surveys during appropriate flowering periods would be unlikely to produce positive results for rare taxa.

While no sign of use or occupation by any protected plant, mammal, bird, or amphibian/reptile species was present, however certain species may become present at the Project site in the future and use the lands for foraging or potential habitation, as such MM **BIO-1** is recommended.

Mitigation Measures

BIO - 1: (*Preconstruction Take Avoidance Biological Resources*) No more than 30 days prior to ground disturbance within each Phase of the Project, the Project proponent shall obtain a preconstruction survey performed by a qualified biologist. The survey shall include surrounding lands within 500 feet of the Project site. The survey shall be conducted for purposes of identifying the presence of any protected plant, mammal, avian (including burrowing owls), or reptile/amphibian species and shall identify active nests within 500 feet of the Project site. A copy of the preconstruction survey shall be submitted to the Planning Department prior to ground disturbance.

BIO - 2: (*Avoidance-burrowing owls and suitable burrows)):* If an active burrowing owl burrow is detected, the occurrence shall be reported to the Fresno Field Office of CDFW and the CNDDB, and disturbance-free buffers shall be implemented in accordance with CDFW's 2012 *Staff Report on Burrowing Owl Mitigation,* as outlined in the table below:

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting sites	Apr 1 – Aug 15	200 meters	500 meters	500 meters
Nesting sites	Aug 16 – Oct 15	200 meters	200 meters	500 meters
Nesting sites	Oct 16 – Mar 31	50 meters	100 meters	500 meters

BIO - 3: (*Construction Buffering*) If nesting birds, burrowing owls, or other protected species are identified during preconstruction surveys, the qualified biologist shall determine and recommend appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. The Project proponent shall ensure that construction buffers meeting the biologist's recommendations are identified with flagging, fencing, or other easily visible means, and shall ensure that the buffers are maintained until the biologist has determined that the nestlings have fledged.

Implementation of MMs **BIO-1** and **BIO-3** will reduce potential impacts to nesting birds, protected plant, mammal, avian, and reptile/amphibian species to a less than significant level and will ensure compliance with State and federal laws protecting these resources.

IV-b) 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?

b) No Impact. According to CNDDB, there are no recorded natural communities of special concern with potential to occur within the Project area or vicinity. Additionally, no natural communities of special concern were observed during the biological survey. Therefore, implementation of the Project will have no impact on riparian habitat or any other sensitive natural communities.

Mitigation Measures

No mitigation is warranted.

IV-c) 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?

c) No Impact. The field survey conducted by MESA Biological determined there are no jurisdictional waters, State or federally protected wetlands, or other protected water bodies within the Project's vicinity. Therefore, there are no impacts.

Mitigation Measures

No mitigation is warranted.

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

d) Less Than Significant Impact with Mitigation Incorporated. No native resident or migratory fish occur on the Project site or within its vicinity. The Biological Report (**Appendix B**) determined no native resident wildlife species occur or have established on the Project site.

A wildlife corridor is defined as a linear landscape element which serves as a linkage between historically connected habitats/natural areas and is meant to facilitate movement between these natural areas. MESA Biological determined that the Project site contains no features that would indicate use by any species as a nursery. As the Project site is isolated from other natural areas, it is unlikely that the Project site serves an important corridor for animals moving locally, regionally, or in broader migrations. Migratory species may utilize the Project site; however, the usage is likely transient. Therefore, with the implementation of MMs **BIO-1** through **BIO-4**, impacts will be less than significant.

Mitigation Measures

Refer to MM **BIO-1** through **BIO 4**.

IV-e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

e) Less Than Significant Impact with Mitigation Incorporated. Tehachapi has no adopted ordinance related to tree preservation.

IV-f) 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?

f) No Impact. The Project site is not within an approved or adopted Habitat Conservation Plan, Natural Conservation Plan, or any other State or local habitat conservation plan. There would be no impact.

Mitigation Measures

No mitigation is warranted.

3.6 Cultural Resources

Cultural Resources				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.6.1 Environmental Setting and Baseline Conditions

A report entitled *Phase I Cultural Resources Survey, APN 417-011-14&417-011-15, Tehachapi, Kern County, California* dated February 2020 (**Appendix C)** was prepared by ASM Affiliates. A summary of the environmental setting and historical framework of the Project site as reported in the Cultural Resources Report (**Appendix C**) is as follows:

> APN 417-011-14 & 15 consists of undeveloped, flat, former farmland. The Tehachapi Valley falls within the California interior chaparral and woodlands sub-ecoregion, supporting grasslands, California oak woodlands, and oak savanna.[14] Although the study area likely would have supported an oak woodland in the past, it currently supports a low cover, moderate density of various non-native grasses and other introduced species.
>
> The APN 417-011-14 & 15 study area falls within the ethnographic territory of the Mountain Kawaiisu, as opposed to the Desert Kawaiisu who occupied desert areas east of Tehachapi. While Zigmond[15] places the study area within the core tribal area for the Kawaiisu with the range of seasonal trips covering significant portions of the Mojave Desert, other research has suggested that Kawaiisu intermarried with Panamint Shoshone and thus had permanent groups in desert areas. The Mountain Kawaiisu would winter in the Tehachapi area, generally in small hamlets of around six houses.[16]
>
> There are multiple known historical villages in the general Tehachapi area. Two villages, Tehechita and Teheshti-va'a-di, were located along Brite Creek, northwest of the study area. The name Tehachapi is derived from the village name Tehechita. At the eastern end of the Tehachapi Valley, in the Sand Canyon area, were the villages of Ma'a'puts and Tomo Kahni. Tomo Kahni is perhaps the

[14] (Schoenherr, 1992)
[15] (Maurice Zigmond, 1986)
[16] (Alan Garfinkel, 2011)

most well-known of these villages and is currently protected within Tomo Kahni State Historic Park.[17] These locations are miles distant from the APN 417-011-14 and 15 study area.

Though no complete prehistory specific to the study area exists, nearby regions have received extensive study and can serve as proxy data. The study area is in close proximity to both the southern Sierra Nevada and the Mojave Desert and though the regions differ in geography and tribal affiliation, the prehistories of both are broadly similar, with the exception of the earliest period. Pleistocene and early Holocene sites have, to date, been found in the Mojave Desert but not the Sierra. Overall, the prehistory of the Mojave Desert has been more greatly studied and is better known than that of the Sierra; indeed, our current cultural historical framework for this portion of the Sierra is simply a variant of the Mojave Desert chronology.

3.6.1 Methodology

The Cultural Resources report (**Appendix C)** included a record search conducted through the Southern San Joaquin Valley Archaeological Information Center (SSJVAIC) of the California Historical Resources Information System at California State University Bakersfield (CSUB). The records search determined there were 12 reports prepared within an approximate 0.5-mile radius of the site. Two confidential resources are recorded within the 0.5-mile radius. No known or recorded sites were determined to be present on the Project site. No archaeological, paleontological, or prehistoric period cultural resources were noted during the field surveys or determined to be likely present based on historical records.

3.6.1.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies for the preservation of Cultural Resources. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Natural Resources Element

Policy NR-18. Work with Kern County to maintain a diverse network of open land encompassing particularly valuable rural and agricultural resources, connected with the landscape around the urban area. Particularly valuable resources include but are not limited to the following:

- Historically open-space settings for cultural resources, native and traditional landscapes,

Policy NR-42. Maintain a step in the development process for evaluating the potential for archaeological and paleontological resources,

Policy NR-43. Maintain that excavation, exploration and documentation of archaeological and paleontological sites be conducted only by recognized authorities by applicable State laws,

Policy NR-44. Maintain that in the event of discovering an archaeological or paleontological site, that the appropriate authorities and parties be notified according to established procedures and applicable State laws.

Civic Health and Culture Element

Policy CH-20. Regularly update and reflect in all appropriate documents, any mapping regarding archaeological and paleontological sites,

[17] (Alan Garfinkel, 2011)

Policy CH-21. Integrate the preservation of archaeological and paleontological resources into the planning and development process as early as possible,

Policy CH-22. Manage the discovery of human remains and the protection of archaeological deposits in accordance with local, State, and Federal requirements as well as through communication with descendant communities,

Policy CH-23. Maintain the City zoning code to reflect current local, State and Federal requirements for the discovery of human remains,

Policy CH-24. Maintain local requirements for archaeological and historical analyses, studies and reports.

3.6.2 Impact Assessment

V-a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?

a) No Impact. Field surveys were conducted in February 2020 and a cultural resources records search dated December 23, 2019 was provided by the SSJVAIC at CSUB.

California Code of Regulations Section 15064.5(a)

For purposes of this section, the term "historical resources" shall include the following:

(1) A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (PRC Section 5024.1, Title 14 CCR, Section 4850, et seq.),

(2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in an historical resource survey meeting the requirements PRC Section 5024.1(g), shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant,

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (PRC Section 5024.1;, Title 14 CCR Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

The records search conducted by the SSJVAIC at CSUB determined that there are no recorded historical resources on the Project site that would be affected by the Project. As the Project site is currently vacant, there are no unrecorded structures onsite that have the potential to be determined to be historical resources.

No historical resources were identified during the field search. Therefore, the Project would have no impact on the significance of a historical resource.

Mitigation Measures

No mitigation is warranted.

V-b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

b) Less than Significant Impact with Mitigation Incorporated. As previously stated, field surveys were conducted in February 2020 and a cultural resources records search dated December 23, 2019 was provided by the SSJVAIC at CSUB. The field survey area was examined with the field crew walking parallel transects spaced at 15-m wide across the parcel, in order to identify surface artifacts, archaeological indicators (e.g., shellfish or animal bone), and/or archaeological deposits (e.g., organically enriched midden soil). The Cultural Resources report stated that special attention was paid to rodent burrow back dirt piles, in the hope of identifying sub-surface soil conditions that might be indicative of archaeological features or remains. No prehistoric or archaeological sites were found during the field survey. The survey determined however, there is a slight possibility that a prehistoric or archaeological site may be unearthed during Project sub-surface construction activities. Therefore, with incorporation of MM CULT-1, impacts to archaeological resources that may potentially exist on site will be less than significant.

Mitigation Measures

CULT - 1: Should archaeological remains or artifacts be unearthed during any stage of Project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the Project proponent shall abide by recommendations of the archaeologist.

V-c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

c) Less Than Significant Impact with Mitigation Incorporated. There is no evidence or record that the Project has the potential to be an unknown burial site or the site of buried human remains. In the unlikely event of such a discovery, mitigation shall be implemented. With incorporation of MM CULT-2, impacts resulting from the discovery of remains interred on the Project site would be less than significant.

Mitigation Measures

CULT - 2: In the event that any human remains are discovered on the Project site, the Kern County Coroner must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.

3.7 Energy

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

3.7.1 Environmental Setting and Baseline Conditions

Southern California Edison (SoCal) supplies electricity to the Project area. SoCal obtains its power through hydroelectric, thermal (natural gas), wind, and solar generation of purchases. SoCal continually produces new electric generation to ensure the provision of services to residents. The Gas Company (The Gas Co) supplies natural gas to the Project area. The Gas Co seeks sustainable natural gas sources and implements continuous improvements to its gas line throughput in service areas, to ensure the provision of services to residents. New construction would be subject to Titles 20 and 24 of the California Code of Regulations (CCR) which each serve to reduce demand for electrical energy by implementing energy-efficient standards for residential, as well as non-residential buildings.

3.7.2 Methodology

Determinations in this Energy assessment are based on a qualitative analysis of the Project's anticipated impacts in light of State and federal regulations and Tehachapi's General Plan policies.

State Regulations

Assembly Bill 32 (AB 32), known as the Global warming Solutions Act of 2006 was signed into law in September 2006. AB 32 established a comprehensive program to reduce GHGs from all sources resulting in energy reduction among other benefits.

The California Building Standards Code (CCR, Title 24, Part 2), establishes building codes in California. CCR Title 24, Part 6 herein referred to as Title 24, establishes the standards for building energy in California. Title 24 applies to all buildings that are heated and/or mechanically cooled and are defined under the California Building Code as A, B, E, H, N, R, or S occupancies. Residences are classified as Group R, in the California Building Code. Title 24, the Building Energy Efficiency Standards, last updated on January 1, 2020 is applicable to all residential construction.

California's Renewables Portfolio Standard was established in 2002 by Senate Bill 1078 with the initial requirement that 20 percent of electricity retail sales must be served by renewable sources by 2017. The program was accelerated by Senate Bill 350 (SB 350) and Senate Bill 100 (SB 100).

SB 350, signed into law in October 2015, established new clean energy, clean air, and GHG reduction goals for 2030. It established tiered increases to the Renewable Portfolio Standard, increasing the goal to 40 percent renewable energy usage by 2024, 45 percent by 2027, and 50 percent by 2030.

SB 100, signed into law in September 2018, increased the required Renewable Energy Portfolio Standard. SB 100 requires the total kilowatt-hours of energy sold by electricity retailers to their end-use customers to consist of at least 50 percent renewable resources by 2026, 60 percent renewable resources by 2030, and 100 percent renewable resources by 2045. In addition, SB 100 includes a State policy that eligible renewable resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers. Under SB 100, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

3.7.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Sustainable Infrastructure Element

Policy SI-30. Provide rebates/incentives for ENERGY STAR® appliances, compact fluorescent light bulbs, dual pane windows, appliance recycling and home insulation,

Policy SI-32. Promote the use of "cool roofs", which reflect the sun's heat back to the sky rather than transferring it to the building,

Policy SI-33. Shade south and west facing windows where possible,

Policy SI-34. Promote the use of solar panels in all development, especially when building, acquiring, or retrofitting public facilities,

Policy SI-39. Apply the California Solar Rights Act of 1978, which authorizes cities and counties to require solar easements as a condition of subdivision approval to assure each parcel or unit the right to receive sunlight across adjacent parcels or units for any solar energy system.

3.7.3 Impact Assessment

VI-a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

a) Less Than Significant Impact. The Project would comply with the Building Energy Efficiency Standards included in Title 24 of the California Code of Regulations, which requires new residential development to incorporate energy efficiency standards into Project designs. In addition, the Project would implement Tehachapi General Plan policies. The Project proposes the construction of single-family residences at medium density to use land to emphasize conservation, successful adaptation to climate and changing resource conditions, and performance effectiveness in the use of energy, water, land, buildings, natural resources, and fiscal resources required for the long-term sustainability of Tehachapi. The City promotes the use of energy efficient design, construction materials, equipment, and appliances to promote sustainability and energy efficiency (Policies SI-30, 32, 22, 34). The General Plan also authorizes solar easements and solar equipment consistent with the California Solar Rights Act of 1978 (Policy SI-39).

Natural gas for the Project and the surrounding area is serviced by The Gas Co. The Project site does not currently have a demand for natural gas usage and the Project would represent an increase in natural gas usage. However, The Gas Co has indicated it can meet the increased demand for natural gas with its existing facilities. As a result of The Gas Co's energy conservation programs it forecasts a trend in savings in natural gas consumption that represents a decrease in overall consumption per capita.[18] This overall trend in reduced natural gas consumption would result in new projects, including the subject Project having reduced impacts related to natural gas consumption.

Current regulations for construction equipment, heavy-duty equipment, and earthmoving equipment used in construction contributes to reductions in energy as well as reduction in pollutant emissions. California implemented its In-Use Off-Road Diesel Fueled Fleets regulations (off-road regulation) which applies to all self-propelled off-road diesel vehicles 25 horsepower or greater and most two-engine vehicles. The Small Off-Road Engines program was implemented by California to apply to categories of outdoor powered equipment and specialty vehicles often used in construction.

Through compliance with energy reduction standards and regulations aimed at reducing consumption of transportation related energy consumption, as well as the energy provider's energy reduction programs, the Project will have less than significant impacts related to energy usage during Project operations and construction and its impacts related to wasteful, inefficient, or unnecessary energy consumption overall, would be less than significant.

Mitigation Measures

No mitigation is warranted.

VI-b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

b) Less Than Significant Impact. Project design, construction and operation would comply current technology and Best Construction Practices designed to achieve sustainability. The City maintains its policies to achieve sustainable infrastructure. Compliance with these applicable policies would support a decrease in energy consumption and GHG emissions enabling the Project to contribute to sustainable community goals and the goals of AB 32. In so doing, the Project would not conflict with any of the applicable plans including Title 24, AB 32, SB 32, SB 350, and SB 100, therefore the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and would be less than significant.

Mitigation Measures

No mitigation is warranted.

[18] (California Gas and Electric Utilities, 2019)

3.8 Geology and Soils

Geology and Soils				
Would the project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code 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 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?	☐	☒	☐	☐

3.8.1 Environmental Setting and Baseline Conditions

Tehachapi is located in an active geologic region and is subject to a variety of seismic hazards, including earthquake, ground shaking, liquefaction, and slope failure.[19] Elevation ranges within the Project site are between 4,000 and 4,200 feet above mean sea level.

[19] (Impact Sciences, Inc, April 2012)

3.8.1.1 Soils

Project specific soils characteristics as categorized in United States Department of Agriculture, Soil Conservation Service Survey data are described in **Table 3-9**.

Table 3-9 Project Soil Characteristics

Project Soil Characteristics			
Map unit name	**Rating**	**Acres in Project**	**Percent of Project**
Havala sandy loam, 2 to 5 percent slopes	Well drained	51.5	89.8%
Havala sandy loam, 5 to 9 percent slopes	Well drained	2.3	4.0%
Tehachapi sandy loam, 2 to 15 percent slopes	Well drained	3.6	6.2%
	Totals for Project Area	**57.4**	**100.00%**

3.8.1.2 Faults and Seismicity

No known active faults cross the City of Tehachapi. The Tehachapi Creek Fault, which is not considered active, is within the City of Tehachapi and roughly parallels SR 58 approximately approximately 1.2 miles to the north. The White Wolf Fault located approximately 16 miles northwest of the Project resulted in an earthquake rated at 7.5 on the Mercali scale in 1952. The Garlock Fault, western Garlock section, is located approximately 6.3 miles south-southeast of the Project. Potential hazards related to major earthquakes include ground shaking, surface rupture along the fault zone, and related secondary ground failures. Typical seismically-induced ground failures include liquefaction, lateral spreading, ground lurching, landslides, inundation, and settlement.

3.8.1.3 Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, the groundwater table, and the duration and intensity of ground shaking. . Typically, liquefaction is most likely to occur where the water table lies within 50 feet of the surface.[20] Soil types within the Project site are not generally conducive to liquefaction because they are well drained. Furthermore, the average depth to groundwater within the City of Tehachapi is approximately 85 to 95 feet which also minimizes liquefaction potential.

3.8.1.4 Soil Subsidence

Subsidence occurs when a large land area settles due to over-saturation or extensive withdrawal of groundwater, oil, or natural gas. These areas are typically composed of open-textured soils, high in silt or clay content, that become saturated. Although some areas in Kern County have experienced subsidence due to groundwater overdraft, the City of Tehachapi's elevation has remained relatively unchanged. Soils of the Project site are listed in **Table 3-9**. Soils onsite represent a low risk of subsidence.

3.8.1.5 Dam and Levee Failure

The Project is located adjacent to the Antelope Run, a meandering natural channel that serves as the major drainage channel through Tehachapi. The Project is physically separated from the Antelope Run by two major berms and concrete-lined canals.

[20] (City of Tehachapi, 2012) Page 4.6-2, available at City Hall, Tehachapi, CA

3.8.1 Methodology

Determinations in evaluation of the Project's impacts related to geology and soils are formed on the basis of available public information, State and federal regulations, and Tehachapi's General Plan policies.

3.8.1.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the geology and soils of the area. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Community Safety Element

Policy CS-1. Require the following of project applicants as appropriate to the proposed land use/development activity:

a. Geotechnical evaluations and mitigation prior to development on any property with the following characteristics:

i. Contains slopes greater than 10 percent or that otherwise have potential for land sliding;

ii. Within an Alquist-Priolo earthquake fault zone or within 100 feet of an identified active or potentially active fault;

iii. Within areas mapped as having moderate or high risk of liquefaction, subsidence, or expansive soils;

iv. Within the 100-year flood zone, in conformance with all Federal Emergency Management Agency regulations;

v. Having the reasonable potential for seismic and geologic hazards.

b. That all analyses adequately address site-specific questions such as slope stability, erosion, subsidence, groundwater effects and earthquakes. The effects of proposed development on adjacent upslope and downslope areas as well as on the site itself shall be evaluated,

c. Apply Chapter 18 of the California Building Code regulating earth work and grading during construction, Chapter 32 - Encroachments into Public Right-of-Way, and Chapter 33 - Safeguards During Construction (includes protection of adjoining property, and temporary use of streets & public property),

d. Limit acreage of bare soils exposed at any one time. Restrict grading to the dry season and require immediate re-vegetation for areas of the site slated to be left,

Policy CS-7. Require technical reviews of groundwater, liquefaction susceptibility, and fault zone data as needed for potential revisions in liquefaction susceptibility and fault zone designations and related land use and construction policies.

Natural Resources Element

Policy NR-42. Maintain a step in the development process for evaluating the potential for archaeological and paleontological resources,

Policy NR-43. Maintain that excavation, exploration and documentation of archaeological and paleontological sites be conducted only by recognized authorities by applicable State laws,

Policy NR-44. Maintain that in the event of discovering an archaeological or paleontological site, that the appropriate authorities and parties be notified according to established procedures and applicable State laws.

3.8.2 Impact Assessment

VII-a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

VI-a-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.

VI-a-ii) Strong seismic ground shaking?

a-i and ii) Less Than Significant Impact. The Project site and its vicinity are located in an area that experiences frequent low-level seismic activity. However, the site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Map and no known active faults cross the Project site or its immediate vicinity. The inactive Tehachapi Creek Fault parallels SR 58 approximately 1.2 miles to the north. The White Wolf Fault is located approximately 16 miles northeast of the Project. The Garlock Fault, western Garlock section, is located approximately 6.3 miles south-southeast of the Project.

There are no known earthquake faults within the vicinity of the Project, and strong ground-shaking is unlikely. Construction of the proposed residential structures would comply with the most recent seismic standards as set forth in the California Building Standards Code. Compliance with these standards would ensure potential impacts related to strong seismic ground-shaking would be less than significant.

Mitigation Measures

No mitigation is warranted.

VI-a-iii) Seismic-related ground failure, including liquefaction?

a-iii) Less Than Significant Impact. Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. Although no specific liquefaction hazard areas have been identified in the City of Tehachapi, nor in Kern County, this potential exists where unconsolidated sediments and a high-water table coincide. Soil data and site characteristics were obtained from the United States Department of Agriculture Natural Resources Conservation Service soil survey of the Project area. A listing of Project soil characteristics is provided in **Table 3-9.** Soils within the Project area are well drained, representing a low risk for liquefaction or seismic-related ground failure. In addition, the average depth to groundwater within the City of Tehachapi is approximately 85 to 95 feet which further reduces potential for liquefaction. Furthermore, as mentioned above in Impact Assessments VI-a-i and VI-a-ii, strong seismic ground-shaking is unlikely to occur. Any impacts related to seismic-related ground failure, including liquefaction, would be less than significant.

Mitigation Measures

No mitigation is warranted.

VI-a-iv) Landslides?

a-iv) No Impact. Landslides usually occur in locations with steep slopes and unstable soils. The Project is located in an area where no major geologic landforms exist, and the topography is essentially flat and level. The Project is situated between foothills located greater than 15 miles to the north and south. Therefore, the Project site has minimal-to-no landslide susceptibility, and there will be no impact.

Mitigation Measures

No mitigation is warranted.

VII-b) Would the project result in substantial soil erosion or the loss of topsoil?

b) Less Than Significant Impact. Earthmoving activities associated with the Project would include excavation, trenching, grading, and construction over an area of approximately 57.4 acres. These activities could expose soils to erosion processes; however, the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose projects disturb one (1) acre or more of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one acre or more, are required to obtain coverage under the Statewide General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, and construction of linear underground or overhead facilities associated with residential construction, but does not include regular maintenance activities performed to restore the original lines, grade, or capacity of the overhead or underground facilities. The Construction General Permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer. Since the Project site has relatively flat terrain with a low potential for soil erosion and would comply with the State Water Resources Control Board (SWRCB) requirements, the Project's impacts would be less than significant.

Mitigation Measures

No mitigation is warranted.

VII-c) 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

c) Less Than Significant Impact. As discussed in Section VI-a-ii and VI-a-iv, the potential for landslide or liquefaction is considered unlikely. Lateral spreading, subsidence, and collapse both on-site and off-site are also considered unlikely or less than significant for reasons previously discussed in these sections. Furthermore, the aforementioned physical properties of these soils make subsidence, liquefaction, lateral spreading, or other ground failure unlikely. Any impacts would be less than significant.

Mitigation Measures

No mitigation is warranted.

VII -d) Would the project be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial direct or indirect risks to life or property?

d) No Impact. The soils types within the Project area consist of the three soils types listed in **Table 3-9**. These soils types can be described as visually silty/sandy loam and are characterized as being well-drained and with limited shrink-swell potential. These soils types are not classified as expansive soil types in Chapter 18 of the California Building Code, the most recently adopted building code that replaced the Uniform Building Code in California. Therefore, the soils within the Project area would have no impact related to expansive soils.

Mitigation Measures

No mitigation is warranted.

VII-e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

e) No Impact. The Project would be required to connect to the City's sewer system. Septic installation or alternative wastewater disposal systems are not necessary for the Project. There will be no impact.

Mitigation Measures

No mitigation is warranted.

VI f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

f) Less Than Significant Impact. No known unique geologic features occur on the Project site. No known paleontological resources exist within the Project area. The Project site has previously been subject to farming and crop production. Previous disking and site grading activities onsite have not uncovered any paleontological resources.

The Paleontological Resource Preservation Act (16 United States Code, Sections 470aaa-470aaa-11) provides a comprehensive program for the preservation and reporting of paleontological resources. Construction activities associated with the Project are not expected to be conducted significantly below grade, at a level where they would have the potential to disturb any previously unknown paleontological resources or geologic features. However, consistent with Tehachapi General Plan policies and to provide for the reporting and preservation of such resources, if discovered, MM **GEO-1** would mitigate impacts related to paleontological resources, if discovered, to a level of insignificance.

Mitigation Measures

GEO - 1: Should fossilized remains, traces, imprints of organisms, bones, or other artifacts be unearthed during any stage of Project activities, work in the area of discovery shall cease until the area is evaluated by a qualified paleontologist. If mitigation is warranted, the Project proponent shall abide by recommendations of the paleontologist. And shall report said find in accordance with the Paleontological Resource Preservation Act.

3.9 Greenhouse Gas Emissions

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

3.9.1 Environmental Setting and Baseline Conditions

The Project is located in the Kern River/Cummings Valley portion of the Mojave Air Basin under the jurisdiction of EKAPCD. EKAPCD provides an *Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency.*[21] While the guidelines are intended to serve as EKAPCD's guide when serving as the lead agency having discretionary approval of projects, the guidelines are useful as a guide in addressing greenhouse gas (GHG) impacts for other agencies acting as lead agency within the air basin.

3.9.1 Methodology

3.9.1.1 Thresholds of Significance

The California Global Warming Solutions Act of 2006 (AB 32) established targets of reducing GHG emissions to 29% below 1990 levels by 2020 (base year for 1990 levels was established at 2002-2004 averages). AB 32 created a comprehensive, multi-year program to reduce GHG emissions in California. The California Air Resources Board (CARB) is the agency responsible for implementing AB 32 through development of Scoping Plans. The first Scoping Plan was approved by CARB in 2008 and the second was approved in 2014. Subsequently Senate Bill 32 (SB 32 was adopted to codify the 2030 GHG emissions reduction target of 40% below 1990 levels by 2030.

Consistency with state reduction targets may be demonstrated by preparing a quantitative analysis that shows that reductions from BAU would exceed state reduction targets.

The City of Tehachapi has not adopted thresholds of significance apart from EKAPCD's thresholds. In accordance with EKAPCD guidance, a project would be considered to have a significant impact to climate change if it would:

[21] (East Kern Air Pollution Control District, March 2012)

1. Project-specific GHG emissions are less than 25,000 tons per year (tpy);[22] or,
2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan,
3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:

   (a) Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy,

   (b) Compliance with GHG Offset as detailed in Section VI of this Policy,

   (c) Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.

In accordance with the CEQA guidelines, a project would be considered to have a significant impact to climate change if it would:

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

b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

GHG emissions are cumulative in nature. An individual project cannot generate enough GHG emissions to cause a discernible change in global climate. However, the Project would participate in the potential for global climate change by its incremental contribution of GHGs. When combined with the cumulative increase of all other sources of GHGs the Project's incremental contributions have the potential to constitute potential influences on global climate change.

The reference gas for global warming potential is carbon dioxide (Co_2). To describe how much global warming a given type of GHG may cause, the carbon dioxide equivalent (Co_2e) is used and quantified in metric tons ($MTCo_2e$). A carbon dioxide equivalent is the mass emissions of an individual GHG, multiplied by its global warming potential.

Determinations in this analysis of Project impacts on GHGs relies on , modeling performed using CalEEMod, Version 2016.3.2 (**Appendix A**). Determinations consider the East Kern Air District's established thresholds of significance, air district adopted rules, the CEQA guidelines thresholds, existing regulations, and applicable Tehachapi General Plan policies as described below.

3.9.1.2 Other State Plans, Policies, and Regulations

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emissions reductions as a result of implementation of these regulations:

- Renewable Portfolio Standards: State requirement that specific percentages of electricity sold by utilities come from renewable sources. California currently requires that at least 50% of its electricity come from renewable sources.

[22] EKAPCD guidance uses both terms: tons per year and metric tons per year. For purposes of this analysis, and in keeping with convention, only metric tons per year will be discussed.

- Low Carbon Fuel Standard (LCFS): Under AB 32, the state identified nine early action measures to reduce GHG emissions. The LCFS is designed to continue to decrease dependence on petroleum fuels and increase the use of low-carbon and renewable alternatives.
- Green Building Code Standards (CalGreen Code): The CalGreen Code includes both voluntary and mandatory measures to support GHG reductions. TheCalGreen Code is a model available for use by local governments. Tehachapi General Plan Policy TF-57 renders these standards applicable to the Project.
- California Model Water Efficient Landscape Ordinance: Created by the California Department of Water Resources (DWR), the model ordinance was made available for use as a model for water use efficiency. Pursuant to Senate Bill 606, all agencies must adopt, implement, and enforce the model ordinance or a more stringent ordinance.
- Pavely II/Low Emission Vehicle III regulations: CARB adopted regulations that establish increasingly stringent emissions standards for criteria pollutants and GHGs emitted by passenger vehicles. Current standards affect vehicles through the 2025 model year. (Amendments to Title 13, California Code of Regulations Sections 1900, 1956.8, 1960.1, 1961, 1961.1, 1965, 1968.2, 1968.5, 1976, 1978, 2037, 2038, 2062, 2112, 2139, 2140, 2145, 2147, 2235, and 2317, and adopting Sections 1961.2 and 1961.3)

3.9.1.3 Applicable General Plan Policies

The City of Tehachapi implements the following for purposes of reducing Greenhouse Gas emissions: : *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Civic Health and Culture Element

Policy CH-11. Maintain and improve Tehachapi's air quality through a variety of measures including greenhouse gas emissions reduction measures.

Town Form Element

Policy TF-55. Pro-actively cooperate with the state to implement AB 32 to achieve the required greenhouse gas emissions reductions,

Policy TF-56. In cooperation with the state and Kern COG proactively promote implementation of SB 375,

Policy TF-57. Reduce greenhouse gas emissions and adapt to climate change with efforts in the following areas:

energy. Key adaptation strategies will include incentivizing renewable energy installation, facilitating green technology and business, and reducing community-wide energy consumption,
land use. Key adaptation strategies will include transit-oriented development, compact development, infill development, and encouraging a mix of uses,
transportation. Key adaptation strategies will include enhanced multi-modal transportation, cycling infrastructure and walking infrastructure,
buildings. Key adaptation strategies will include green building incentives, assessment of green building techniques as a formal phase of city design review, and development of a green building ordinance. Adaptation strategies will also include increased water efficiency in buildings,
waste. Key mitigation strategies will include increased composting and recycling, and efforts to reduce waste generation,

ecology. Key adaptation strategies will include tree planting and native and drought-resistant planting.

Public Realm Element

Policy PR19. As each opportunity presents itself, convert existing streets to Green Streets.

3.9.2 Impact Assessment

3.9.2.1 Short-Term Construction-Generated Emissions

The Project was assumed to be completed in multiple phases, with site preparation and grading occurring within each phase. Because the expected schedule and the default schedule differ, the equipment in the building construction phase was adjusted to retain the default horsepower-hours. Total GHG emissions generated during all phases of construction are presented in **Table 3-10** below:

Table 3-10 Construction Greenhouse Gas Emissions- The Address Subdivision

Construction Greenhouse Gas Emissions- The Address Subdivision	
Year	**Annual Emissions ($MTCO_2e$)**
2020	114.4.
2021	333.56
2022	352.54
2023	351.17
2024	330.13
2025	37.71[23]
2026	416.73
2027	363.05
2028	346.97
2029	273.19
2030	274.10
Total	**3,079.15**
Amortized over 30 years	**102.64**
EKAPCD Threshold (mtpy)	**25,000**
Are Emissions Significant	**No**

3.9.2.2 Long-Term Operational Emissions

Operational or long-term emissions occur over the life of the Project. Sources of emissions may include motor vehicles, energy usage, water usage, waste generation, and area sources, such as landscaping activities and residential wood burning. First occupancy of the Project is expected to occur by July 2021. The Project's operational emissions are listed in **Table 3-11**.

[23] Note: a gap in construction activities was assumed to occur between Phases 5 and 6 (construction years beginning in 11/2024 and ending in 11/2025) to account for market corrections

Table 3-11 Operational Greenhouse Gas Emissions 2020 - The Address Subdivision

Operational Greenhouse Gas Emissions- The Address Subdivision[24]			
	Emissions ($MTCO_2e$ per Year)		
Source	BAU	Project (At Buildout)[25]	Add'l Reductions w/Design & Regulation (%)
Area	361.86	325.77	5% [1]
Energy	1,049.82	926.26	5% [2]
Mobile	4,188.00	3,274.70	10% [3,4]
Waste	139.80	139.79	2% [5]
Water	119.89	119.89	2% [6]
Amortized Emissions	***195.31***	***159.55***	***N/A***
Total	***5,859.37***	***4,786.41***	***24%***
Reduction from BAU		***19%***	***43%***
Reduction Goal (CARB Threshold)		***40%-***	
Are Emissions Significant		***No***	

1. *EKAPCD Rule 410.1A*
2. *Title 24 Energy Efficiency Standards (Project design feature 25% below requirements)*
3. *Pavley II/Low Vehicle Emission Standards*
4. *Low Carbon Fuel Standard*
5. *Tehachapi Recycling/Composting Programs (GP Policy TF-57)*
   Water Conservation features required by California Model Water Efficient Landscape Ordinance and Tehachapi General Plan

VIII-a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

VIII-b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

a & b) Less Than Significant Impact. Emissions of GHGs are cumulative in nature. Project GHG emissions would be both direct and indirect. As demonstrated in **Table 3-10,** worst case scenario, the Project would generate maximum emissions of 416.73 $MTCO_2e$ during construction in year 2026. Should development of the Project and its construction be extended over a 30-year period, Project GHG emissions from construction activities would be approximately 102.64 $MTCO_2e$ (amortized over a 30-year period). As demonstrated in **Table 3-11**, the Project would generate amortized emissions during its operation of 159.55 $MTCO_2e$ and a total maximum emissions of 4,786.41 $MTCO_2e$. The EKAPCD significance thresholds would require that the Project specific GHG emissions are less than 25,000 $MTCO_2e$. The Project amortized construction and operational emissions and its maximum total construction and operational emissions all fall below EKAPCD's significance threshold.

Relative to achieving reductions goals, the Project's operational GHG emissions were modeled using CalEEMod. Additional design features, current regulations that affect the Project, and Tehachapi General

[24] (Mitchell Air Quality Consulting, June 4, 2019), Table 15, pp. 99-100
[25] With regulation and Project Design Features.

Plan policies were added as alternative reductions not included in the CalEEMod modeling. CARB's AB 32 goal is a reduction of 40% below BAU by year 2030. The percentage of reductions shown in **Table 3-11** that include the additional features to be implemented by the Project result in an approximate 43% reduction in Project GHG emissions during the Project's operational years. CARB's AB 32 goal is a reduction of 40% below BAU by year 2030. EKAPCD;s significance thresholds dictate a reduction by at least 20% below BAU.

Using quantitative methods in accordance with EKAPCD and CARB guidance, the Project can demonstrate that it can meet regional and state reduction targets consistent with the adopted plans. Policies, and regulations currently adopted and effect. As such, the Project, would have less than significant impacts.

Mitigation Measures

No mitigation is warranted.

3.10 Hazards and Hazardous Materials

Hazards and Hazardous Materials				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
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?	☐	☒	☐	☐

3.10.1 Environmental Setting and Baseline Conditions

3.10.1.1 Hazardous Materials

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code (GC) Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop at least annually an updated Cortese List. The

Department of Toxic Substances Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data (DTSC, 2010). In addition to the EnviroStor database, the SWRCB Geotracker database provides information on regulated hazardous waste facilities in California, including underground storage tank cases and non- underground storage tank cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on March 6, 2020 determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project site or immediate surrounding vicinity.

3.10.1.2 Airports

The Tehachapi Municipal Airport is located approximately 1.8 miles northeast of the Project. The Mountain Valley private airstrip is located approximately 1.8 miles southeast of the Project. The Project is located outside of all of the identified airport protection zones as illustrated on Tehachapi's Airport Influence Map, dated January 2012.[26]

3.10.1.3 Emergency Response Plan

Emergency response plans and emergency evacuations plans within the area are prepared by the Kern County Emergency Management Department in coordination with the emergency operations department of the incorporated cities within Kern County. Kern County's currently adopted plans applicable to the Project consist of a Sheltering Operations Plan, Federal Communications Code Emergency Administration System Plan, Hazard Mitigation Plan, Terrorism Plan, Emergency Operations Plan, and Isabella Dam Failure Inundation Plan.

The City of Tehachapi has a disaster response agreement with Kern County to provide mutual aid in the event of an emergency or disaster. For emergencies such as earthquakes, the City utilizes its Multi-hazard Functional Plan to facilitate orderly evacuation.

3.10.1.4 Sensitive Receptors

Sensitive receptors within the Project's vicinity consist of other single- and multifamily residential development that surrounds the Project site, and the Sonshine Place Preschool School, located to the southwest of the Project at 19016 Highline Road. No other identified concentrations of sensitive receptors, such as hospitals, nursing homes, or schools are within the Project's vicinity.

3.10.1 Methodology

Determinations in evaluation of the Project's potential to result in hazards or generate hazardous materials are formed on the basis of available public information, State and federal regulations, and Tehachapi's General Plan policies.

[26] (Tehachapi, 2020)

3.10.1.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to hazards and hazardous materials. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Community Safety Element

Policy CS-10. Provide public information via the City's internet web page to community residents and businesses regarding the City's Multi-hazard Functional Plan to enable the orderly evacuation of occupants following an earthquake,

Policy CS-11. Maintain existing city-wide emergency notification system with current contact information,

Policy CS-31. Prohibit conflicts with approach surfaces, clear zones, or Federal Aviation Regulation Part 77 imaginary surfaces as depicted in the Master Plan Report for the Tehachapi Municipal Airport or the Mountain Valley Airport,

Policy CS-32. Review and update the Disaster Response Plan on a regular basis, including incorporation of evacuation and specific information about potential dam inundation routes,

Policy CS-42. Through this General Plan (Figure 2-4, Mobility Plan), disclose and inform property owners along approved haul routes of the potential for hazard release,

Policy CS-43. Apply the relevant requirements of the Countywide Integrated Waste Management Plan (CWMP) as well as all of the Consolidated Unified Protection Agency (CUPA) program elements,

Policy CS-44. Maintain an accurate inventory of environmentally contaminated sites to inform the public about contamination from previous uses. To the extent feasible, work directly with landowners in the cleanup of these sites, particularly in areas with the potential for regeneration of sites/buildings (see Figure 2-2, Nature of Intended Change),

Policy CS-45. Maintain zoning provisions and environmental review processes that limit the location of facilities that use hazardous materials. Require safe distances between these sites and residential areas, groundwater recharge areas and waterways,

Policy CS-46. Coordinate with emergency-first responders and 9-1-1 emergency dispatch operators to work with the County Agricultural Commissioner's office for technical assistance, in the event of a pesticide related emergency,

Policy CS-47. Coordinate with pesticide applicators and other users such as home-owners to ensure necessary measures are taken to protect public health and safety, including the implementation of Integrated Pest Management (IPM) strategies,

Policy CS-48. Minimize exposure to airborne pollution through the following:

a. Require air pollution point sources to be located at safe distances from sensitive sites such as homes and schools;

b. Require analysis and corresponding mitigation of individual development projects in accordance with the most current version of Kern County Air Pollution Control District Air Quality Assessment Guidelines;

c. Require payment of fees to fund regional transportation demand management (TDM) programs for all projects generating emissions in excess of Kern County Air Pollution Control District adopted levels;

d. Allow sensitive land uses such as dwellings, schools, daycare centers, playgrounds, medical facilities within or adjacent to areas designated for substantial industrial uses (e.g., heavy manufacturing, vehicle painting, etc.) only after an analysis, provided by the proponent, demonstrates that any potential health risks will not be significant;

e. Adopt new development code provisions to ensure that individual uses in mixed-use projects do not pose significant health effects;

f. Provide information to residents and businesses about ways to reduce or eliminate the use of hazardous materials, including the use of safer non-toxic equivalents.

Policy CS-50. For proposed land use/development activity adjacent to industrial, commercial, or agricultural uses, apply the following as appropriate:

a. Require a soil and groundwater contamination assessment in accordance with American Society for Testing and Materials standards to determine if contamination exceeds regulatory action levels and to apply the appropriate remediation procedures prior to approval of the proposal;

b. Require non-agricultural development to provide all necessary buffers, as determined by the Agriculture Commissioner's Office, from agricultural operations to minimize the potential for pesticide drift;

c. Require all users, producers, and transporters of hazardous materials and wastes to clearly identify the materials that they store, use, or transport, and to notify the appropriate City, County, State and Federal agencies in the event of a violation.

Policy CS-51. In cooperation with local agricultural interests, work toward voluntary reduction or elimination of aerial and synthetic chemical application.

3.10.2 Impact Assessment

IX-a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

IX-b) 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?

IX-c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

a-c) Less Than Significant Impact. The Project site is located immediately adjacent to the northeast of Sonshine Place Preschool. In addition, the Project is adjacent to existing residential development. Construction of the Project will involve the use of hazardous materials associated with construction equipment, such as diesel fuel, lubricants, and solvents. However, the contractor will implement a SWPPP and will comply with all California Division of Occupational Safety and Health (Cal/OSHA) regulations regarding regular maintenance and inspection of equipment, spill prevention, and spill remediation in order to reduce the potential for incidental release of pollutants or hazardous substances onsite. Furthermore, any potential accidental hazardous materials spills during construction are the responsibility of the contractor to remediate in accordance with industry best management practices and State and county regulations. The operational phase of the Project will not involve the use or transport of hazardous materials.

The Project would bring new homes into an area that has significant agricultural activity that may include pesticide application. However, because significant urban development is occurring in the area, the majority

of the sites that once experienced agricultural activity have already ceased agricultural operations. Tehachapi General Plan policies seek to minimize exposure of persons to airborne pollution by coordinating with pesticide applicators and other agriculture related pesticide applicators to ensure necessary measures are taken to avoid accident conditions.

The Project itself is not anticipated to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. In consideration of the implementation of applicable General Plan policies and applicable regulations, impacts related to hazardous releases, the handling of hazardous materials, and hazardous emissions will be less than significant.

Mitigation Measures

No mitigation is warranted.

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

d) No Impact. The Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by DTSC. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on March 6, 2020 determined that there are no known active hazardous waste generators or known hazardous material spill sites within the Project site. There will be no impact.

Mitigation Measures

No mitigation is warranted.

IX-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?;

e) Less Than Significant Impact. The Kern County Airport Land Use Compatibility Plan (ALUCP) was adopted in November 2012 to cover all of Kern County, including its incorporated cities. The ALUCP identifies airport influence areas that consists of identified areas that could be affected by present or future aircraft operations at an existing public airport. The Project is not located within any of the identified airport influence area. The Tehachapi Municipal Airport is located approximately 1.8 miles northeast of the Project. The Mountain Valley private airstrip is located approximately 1.8 miles southeast of the Project. The Project is located outside of all of the identified airport protection zones as illustrated on Tehachapi's Airport Influence Map, dated January 2012. Therefore, the project would have no impact related to safety hazards or excessive noise.

Mitigation Measures

No mitigation is warranted.

IX-f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

f) Less Than Significant Impact. The Project involves the construction and development of a residential subdivision. Construction traffic associated with the Project would be minimal even though construction would take place over an approximate 11-year span. Operational traffic will consist of vehicle trips associated

with residential development. It is not anticipated that road closures, detours, or lane diversions would be necessary for connection of utilities and development of residential streets during construction, however, if road closures and/or detours became necessary, disturbances to traffic patterns, such as a potential lane diversion will be performed during the first phase of Project construction and would be temporary and minimal in nature. There are alternate routes available to serve traffic disturbed by such activity.

Adopted emergency response plans and emergency evacuations plans within the area are contained in the City's Disaster Response Plan and through coordination with Kern County, are prepared by the Kern County Emergency Management Department. Currently adopted plans collectively provide the foundation for addressing responses to the various types of emergencies reasonably foreseeable in the area. Therefore, the Project would not physically interfere with adopted emergency plans and there would be no substantial Project-related impacts to emergency evacuation routes or emergency response routes on local roadways. The Project's impacts would be considered less than significant.

Mitigation Measures

No mitigation is warranted.

IX-g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

g) Less than Significant Impact with Mitigation Incorporated. According to the California Department of Forestry and Fire Protection's (CAL FIRE) Fire Hazard Safety Zone Maps,[27] the Project site itself is neither designated as a Very High Severity Zone by CAL FIRE nor as a State Responsibility Area by any agency. However, as depicted on **Figure 3-2**, State Responsibility Areas are located near the Project (adjacent to the northwest and adjacent to the south). There are no CAL FIRE designated Very High Severity Zones with a 15- mile radius of the Project. Exposure of people and structures proposed by the Project are discussed in greater detail in **Section 3.21**, which is devoted to the discussion of Wildland Fires. Mitigation Measures contained in **Section 3.21** would mitigate impacts related to exposure to wildland fires to levels that are less than significant.

Mitigation Measures

Refer to mitigation found in Section 3.21.

[27] (California Department of Forestry & Fire Protection, 2019)

3.11 Hydrology and Water Quality

Hydrology and Water Quality				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
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 off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; 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?	☐	☐	☒	☐

3.11.1 Environmental Setting and Baseline Conditions

The City of Tehachapi overlies the Tehachapi Valley West Basin (DWR Basin No. 5-28), an adjudicated basin. The Tehachapi-Cummings County Water District (TCCWD) is the water purveyor for the City. TCCWD participates in its regional urban water management activities with five agencies, one wholesale supplier, and four retail water suppliers. Those parties include: Tehachapi-Cummings Water District, Bear

Valley Community Services district, the City of Tehachapi, Golden Hills Community Services District, and Stallion Springs Community Service District.

Water supplied to the City by TCCWD is made available through the wholesale supplier via State Water Project (SWP) supplies. Those supplies are used for agriculture, commercial, industrial, and urban uses in the area. TCCWD also acts as the watermaster for the three adjudicated water basins in the Greater Tehachapi area. TCCWD supplies only SWP water to the agencies. Pursuant to judgements, some individual agencies within the regional water management plan have rights to exercise their groundwater supplies.

The 2015 Regional Urban Water Management Plan (UWMP) describes the City of Tehachapi as a retail water supplier. **Table 3-12** below as taken from the 2015 UWMP lists Tehachapi's projected water supplies.[28]

Table 3-12 City of Tehachapi Projected Water Supplies

City of Tehachapi Projected Water Supplies					
		Projected Water Supply *Reasonably Available Volume*			
Water Supply Source	Additional Detail on Water Supply	2020	2025	2030	2035
Groundwater	Tehachapi Basin Pumping Allocation	1,822	1,822	1,822	1,822
Purchased or Imported Water	Purchased SWP Supplies [1]	45	150	261	378
Recycled Water	Agricultural Irrigation	250	250	250	250
Recycled Water	WWTP Process Water	125	125	125	125
	Total	2.242	2,347	2,458	2,575

1. Purchased SWP are expected to be sufficient to meet projected demands

3.11.1.1 Hydrology

The Tehachapi General Plan EIR describes landforms within the Tehachapi Valley to primarily consist of alluvial deposits carried down from the adjacent mountains by a drainage system of local creeks. The Tehachapi Valley is relatively flat and sits at an elevation of approximately 4,000 ft. The Tehachapi Mountains rise to over 8,000 ft to the south. The principal drainage courses in the valley are Tehachapi Creek, which flows west to the San Joaquin Valley, and Cache Creek, which flows east to the Mojave Desert. Proctor Dry Lake also collects surface drainage that flows eastward. The majority of the stream flow coming into Tehachapi Valley percolates through streambeds and does not exit the valley via stream flow. Any stream flow that is lost from the basin is generally through surface water outflow in Tehachapi Creek, through evaporation from Proctor Dry Lake and in very wet years through surface water outflow to Cache Creek.[29]

The Tehachapi basin is divided into two sub-basins: Tehachapi Valley East and Tehachapi Valley West. Immediately to the west is Brite Basin, a natural sink where several small streams that drain the surrounding valley walls disappear into the ground, mostly in the vicinity of Brite Lake. This lake is one of the principal recharge sites for the Tehachapi Groundwater Basin that underlies the Tehachapi Basin and Brite Basin. The other important recharge area is Antelope Reservoir, south of Highline Road. Many smaller stormwater

[28] (Aecom, Inc., May 2016)
[29] (Impact Sciences, Inc, April 2012)

retention basins throughout the City also act as groundwater recharge facilities.[30]

The Project site is bounded by a TCCWD control channel on the east and the Antelope Run, a meandering natural channel that serves as the major drainage channel through Tehachapi. Antelope Run is also located on land owned by the TCCWD.

3.11.1.2 Water Quality

The City operates six wells serving five pressure zones. The General Plan EIR indicated that the groundwater quality in the Tehachapi Valley basin is generally good. Historic contamination from past agriculture operations has occurred; however, water quality testing indicates the reporting levels are below contamination standards.

3.11.2 Methodology

A Conceptual Drainage Study dated January 2020, was prepared by LAV//Pinnacle Engineering, Inc.

(LAV/Pinnacle) (**Appendix D**) for the Project. The study describes existing conditions related to the site hydrology and drainage potential and provided recommendations related to site drainage that will form the basis for final Project design and improvements. The report includes recommendations related to the adjacent east-west flood control channels when subjected to 10- and 100-year storm flows.

3.11.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to Hydrology and Water Quality. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Town Form Element

Policy TF-60. Approve development projects only when consistent with the allowed water availability.

Community Safety Element

Policy CS-5. Wherever possible and as feasible, incorporate permeable pavement, turf block, decomposed granite, grasscrete or similar permeable surfaces rather than conventional, impervious pavement,

Policy CS-20. Coordinate with all public and private agencies involved in flood control to ensure that improvements do not disrupt environmentally sensitive areas.

Public Realm Element

Policy PR-23. As practical, include water harvesting measures in right-of-way design.

Sustainable Infrastructure Element

Policy SI-3 Improve quality of urban stormwater runoff before discharging to water body or infiltration into aquifer.

Policy SI-4&24 Incorporate low impact design stormwater best management practices (BMPs) such as the following to address stormwater and improve water quality:

a. Decentralize stormwater basins, accommodating as much runoff on-site as possible;

[30] (Impact Sciences, Inc, April 2012)

b. Improve surface water quality through increased use of bioretention basins and infiltration measures where possible;
c. Require that 5% of all impervious surfaces function as on-site bioretention or infiltration,
d. Convey stormwater through natural courses whenever possible rather than through pipes;
e. Encourage disconnection of downspouts from storm drain system;
f. Encourage stormwater reuse;
g. Combine open space areas with stormwater management where possible.

Policy SI-5	Reuse stormwater flows onsite,
Policy SI-6	Where soils allow for infiltration, promote infiltration into the groundwater basin,
Policy SI-8	Slow stormwater runoff through low impact design BMPs,
Policy SI-10	Discourage large scale retention basins in favor of a decentralized approach, accommodating as much runoff onsite as possible to minimize standing water, maximize infiltration, and improve aesthetics. Vegetated BMP's should be landscaped with native, drought tolerant plantings which conserve water and are cost effective.
Policy SI-13	Require new, high consuming users to secure an alternative water source other than groundwater,
Policy SI-14	Reuse stormwater for on-site irrigation,
Policy SI-17	Require new development to contribute to the cost of upgrading the wastewater treatment plant to tertiary level,
Policy SI-19	Avoid potential contaminants near vulnerable wells,
Policy SI-20	New development should utilize public water and sewer systems.

3.11.3 Impact Assessment

X-a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

a) Less Than Significant Impact. The Conceptual Drainage Study (**Appendix D**) prepared by LAV/Pinnacle provided a hydrological and hydraulic analysis of site conditions including the location of adjacent flood control channels and the impacts of the Project on said facilities. An internal storm drain system would collect, convey, and dispose of water generated by the Project, both during and after construction. Water will be directed to the adjacent flood control channels.

In compliance with State regulations, all development within the Project area would be required to comply with state regulations adopted to reduce groundwater degradation. The RWQCB requires the preparation of a SWPPP for projects that exceed specified size limits. The Project would be required to obtain RWQCB approval of its SWPPP prior to construction. Therefore, the Project would have a less than significant impact through implementation of planned Project design features (storm drain system), compliance with City of Tehachapi requirements, and through compliance with adopted SWPPP regulations.

Mitigation Measures

No mitigation is warranted.

X-b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project would impede sustainable groundwater management of the basin?

b) Less Than Significant Impact. The City's water supply derives from groundwater, SWP water, and limited amounts of recycled water. The City anticipates increasing its recycled and reclaimed water usage to reduce dependency on groundwater and alleviate groundwater depletion. The UWMP indicates the City is planning to increase and/or provide tertiary treatment of wastewater for landscape and irrigation purposes in new growth areas and existing landscaped areas. Projected groundwater supply use in the 2015 UWMP, as provided in **Table 3-12**, considered project buildout of the General Plan through 2035. As a Condition of Approval, new development is required to secure and/or purchase water rights to serve its development and/or pay in-lieu fees as determined by the City (for the City to purchase additional water for recharge). Each housing unit will be required to pay the water rights fee in place at the time of permit issuance.

The proposed 237-lot subdivision is within the Tehachapi-Cummings Water District/City of Tehachapi water service area. Water use within Tehachapi averages 118 gallons of water each day per resident.[31] With an average household size of 2.63 persons[32], the Project would support a population of 623 and would be expected to use approximately 73,514 gallons of water per day under normal operation, including domestic and landscape irrigation. This equates to approximately 82 acre feet per year (AFY). Although the Project will utilize groundwater, SWP water, and limited amounts of recycled water for domestic purposes. The amount of groundwater used by the Project is not considered significant and will not significantly lower the groundwater table of the aquifer or interfere substantially with the recharge of the underground aquifer.

The TCCWSD and the City of Tehachapi have developed an urban drainage design concept that collects, drains, and retains surface water runoff for intentional groundwater recharge throughout the city. Collection and diversion of surface water will occur through existing flood control channels.

Therefore, according to the City's UWMP, City policies, and Conditions of Approval, the Project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project would impede sustainable groundwater management of the basin.

Mitigation Measures

No mitigation is warranted.

[31] (Aecom, Inc., May 2016)
[32] (Lisa Wise Consulting, December 2015)

X-c) 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:

(i) result in substantial erosion or siltation on- or off-site;
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
(iv) impede or redirect flood flows?

And;

X-d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundations?

c-d) Less Than Significant Impact. With respect to alteration of the existing drainage patterns of the site or area, alteration of the course of a stream or river, and the addition of impervious surfaces, the hydrological and hydraulic analyses contained in the Conceptual Drainage Study (**Appendix D**), it was determined that: a) existing flood control channels intercept most of offsite flow from the watershed south of the Project; b) existing flood control channels are sufficiently sized to receive and convey storm water from all tributary areas; c) an internal storm drain system for the Project is feasible and can be designed to collect and convey storm water that is generated both internally and along the Project's frontage roads. The Project storm drainage infrastructure will capture much of the runoff that currently flows within or adjacent to Highline and Tucker Roads, improving drainage on both; and d) the conceptual storm drain system provided in the study is adequate to collect, convey, and dispose of storm water.

The Project is not located within a flood hazard, tsunami, or seiche zone, and will not risk release of pollutants due to Project inundations. Therefore, as determined by the Conceptual Drainage Study and in light of the fact that there is no risk of flooding, tsunami or seiche, the Project will have a less than significant impact.

Mitigation Measures

No mitigation is warranted.

X-e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

e) Less Than Significant Impact. Applicable water quality control plans for the City of Tehachapi are included within the Water Quality Control Plan for the Tulare Lake Basin. The City is currently in compliance with all facets of the water quality control plan. Under the Sustainable Groundwater Management Act (SGMA), the Tehachapi Valley West Basin was ranked by DWR as a low or very low priority and as such, is not required to be included in a Groundwater Sustainability Plan. In addition, as an adjudicated basin, the entire Tehachapi Valley Basin (both east and west) is exempt from most SGMA requirements.

Mitigation Measures

No mitigation is warranted.

3.12 Land Use and Planning

Land Use and Planning				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.12.1 Environmental Setting and Baseline Conditions

The Project is currently within the City limits. The Project is designated Neighborhood Edge (T-3) and Neighborhood General (T-4) in the City's General Plan. The Project is zoned Neighborhood Edge (T-3). Lands adjacent to the site consist of developed and undeveloped suburban residences and vacant land. General Plan designations and Zone designations on the surrounding parcels are listed in **Table 3-13**.

Table 3-13 Existing Land Use, General Plan, and Zoning

Existing Land Use, General Plan, and Zoning			
Direction	Existing Land Use	General Plan	Zoning
Project Site	Vacant Land	Neighborhood Edge (T-3) Neighborhood General (T-4)	Neighborhood Edge (T-3)
North	Antelope Run Drainage	Neighborhood Edge (T-3) Neighborhood General (T-4)	Neighborhood General (T-4)
South	Developed & Undeveloped suburban residential lots	Estate Residential 2.5 acres; Estate Residential 20 acres	Estate Residential -2.5-acre min. (E-2.5) Estate Residential -20-acre min. (E-20) (County)
East	Developed & Undeveloped suburban residential lots	Estate Residential 2.5 acres;	Estate Residential -2.5-acre min. (E-2.5) (County)
West	Vacant land	Rural, Rural General	Rural General (T-2.5)

Tehachapi has adopted a form-based General Plan and Zoning Code. Characteristics of the City's General Plan and Zone designations are as follows:

Rural General/T-2.5: Applied to areas generally along Tehachapi's edges to provide for rural neighborhood housing choices in a small-town setting,

Neighborhood Edge/T-3: Applied to areas generally along the edges of Tehachapi's lower intensity neighborhoods to provide for a transition between general neighborhoods and rural areas,

Neighborhood General/T-4: Applied to Tehachapi's general neighborhood areas to provide for a variety of single-family and multi-family housing choices in a small-town neighborhood setting.

3.12.2 Impact Assessment

XI-a) Would the project physically divide an established community?

a) Less Than Significant Impact. The Project involves the development of residential homes adjacent to existing residential development in a developing area of the community. The area generally comprises both rural and urban development, the interface of which would not physically divide the community. The Project site is classified by the City's General Plan as Sub-Urban (T-3) which represents areas generally located along the edges of the City's lower intensity neighborhoods to provide for a transition between typical residential neighborhoods and rural areas. The Project represents the logical expansion of urban development in an efficient manner that would encourage unification and expansion of the community. Implementation of the Project would provide additional housing and an expansion of infrastructure within the community. Therefore, the Project would have a less than significant impact associated with the physical division of established land uses in the community.

Mitigation Measures

No mitigation is warranted.

XI-b) Would the project cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

b) Less Than Significant Impact. The Project involves approval of a Planned Development that includes: a subdivision, development of single-family residences, a neighborhood clubhouse, an amphitheater, storage units, and recreational vehicle parking areas. The Project does not require changes in land use designation or zoning for its implementation. Consistency with applicable General Plan Polices is provided in **Table 3-14.** Consistency with General Plan policies addressed in other Sections of this IS/MND are not included in **Table 3-14**.

Table 3-14 Project Consistency with Applicable General Plan Policies

Project Consistency with Applicable General Plan Policies		
Policy No.	**Town Form Element**	**Consistency Discussion**
TF-5.	Adjust regulations for the various neighborhoods, districts and corridors to reflect the nature of intended change (e.g., maintenance, regeneration or expansion) and update these identifiers over time, as necessary to reflect the vision;	Consistent with General Plan policy, the Project proposes development that reflects the nature of Tehachapi's vision.
TF-7.	Require that a neighborhood master plan be prepared prior to subdividing any land and that no zone changes be approved without a concurrent neighborhood subdivision and block structure (See Table 2-A for example). A neighborhood master plan shall consist of at least one pedestrian shed and address the following: proposed block and street network and connectivity to existing network per block perimeter requirements in Table 2-3A, proposed open space distribution, and the application of zoning to each block consistent with Figure 2-3 identifying how the proposed neighborhood plan interfaces with adjacent existing or future development. The neighborhood plan may show less detail on sites not in control by the applicant but shall address the required topics above.	The Project is the approval of a Planned Development and a concurrent Subdivision. The Planned Development consists of a pedestrian shed that proposes streets and open space that provides connectivity to adjacent existing land uses and future planned development. Approval of a Planned Development is commensurate with approval of the concept of a Master Plan.
TF-5.	Adjust regulations for the various neighborhoods, districts and corridors to reflect the nature of intended change (e.g., maintenance, regeneration or expansion)	Consistent with General Plan policy, the Project proposes development that reflects the nature of Tehachapi's vision.

Project Consistency with Applicable General Plan Policies		
Policy No.	**Town Form Element**	**Consistency Discussion**
	and update these identifiers over time, as necessary to reflect the vision;	
TF-7.	Require that a neighborhood master plan be prepared prior to subdividing any land and that no zone changes be approved without a concurrent neighborhood subdivision and block structure (See Table 2-A for example). A neighborhood master plan shall consist of at least one pedestrian shed and address the following: proposed block and street network and connectivity to existing network per block perimeter requirements in Table 2-3A, proposed open space distribution, and the application of zoning to each block consistent with Figure 2-3 identifying how the proposed neighborhood plan interfaces with adjacent existing or future development. The neighborhood plan may show less detail on sites not in control by the applicant but shall address the required topics above.	The Project is the approval of a Planned Development and a concurrent Subdivision. The Planned Development consists of a pedestrian shed that proposes streets and open space that provides connectivity to adjacent existing land uses and future planned development. Approval of a Planned Development is commensurate with approval of the concept of a Master Plan.
TF-21.	Maintain a range of use-types as wide as practical for each transect designation based on location and intent;	The Project proposes a mix of use types that are allowable within the Project's transect.
TF-22.	As practical, enable the mixing of uses within a building and/or on a site to increase options and capture vehicle trips;	The mix of uses proposed by the Project will reduce vehicle trips by incorporating a variety of uses into the site.
TF-25.	**Efficient use of land.** Incorporate efficient land use and development patterns that conserve resources such as: • Shared parking to promote mixed uses • Parking alternatives • Adaptive reuse of sites/structures • Development standards (e.g., setbacks and lot coverage requirements) that enable a wide variety of physical outcomes based on the intended physical environment(s) • Transit-proximate housing.	Consistent with General Plan Policy, development standards that have been incorporated into the project will enable a wide-variety of physical outcomes to enhance the physical environment.
TF-32.	Direct building design to relate to pedestrians and a pedestrian- oriented public realm.	Consistent with General Plan Policy, pedestrian connections designed within the Project will relate to the public realm and the nature of the community.
TF-33	Require additional review and discretion for architectural styles that are not locally relevant.	Consistent with General Plan Policy, in the event that architectural styles are proposed with Project future development, and are determined at the City's discretion to be locally irrelevant, additional review and discretion will be exercised by the Planning Department.
TF-34	Avoid 'franchise' or formula architecture unless it conforms to the Tehachapi region as determined by the City.	Refer to answer in TF-33
TF-38.	Utilize clear development requirements tailored to the community vision.	Consistent with General Plan Policy, development requirements imposed by the City will be evaluated during all Phases of Project implementation for consistency with the community vision.
Policy No.	**Public Realm Element**	**Consistency Discussion**
PR-4.	Identify and integrate natural corridor ('greenway') opportunities to extend into town from nature and connect these corridors to each other.	Consistent with General Plan Policy, the Project proposes natural corridors designed to connect with adjacent natural areas, such as the Antelope Run flood channel.
Policy No.	**Economic Vitality Element**	**Consistency Discussion**
EV-21.	To the extent that trip-generating uses can be absorbed/eliminated within a neighborhood(s) by introducing compatible non-residential uses, such uses as the following, should be allowed in neighbor-	Consistent with General Plan Policy, the Project proposes a clubhouse that may/may not include non-alcoholic convenience retail and/or food and beverages, mini-storage units, and recreational vehicle parking areas that will allow for absorption of vehicle trips.

Project Consistency with Applicable General Plan Policies		
Policy No.	**Town Form Element**	**Consistency Discussion**
	hoods provided they are within house-scale buildings and maintain compatibility with the adjacent and neighboring uses: • Convenience retail (non-alcoholic) • Food and beverage (non-alcoholic) • Personal services	
Policy No.	**Natural Resources Element Policy**	**Consistency Discussion**
NR-5.	Maintain Tehachapi's small mountain town character through appropriate development standards that reflect the various intended physical contexts throughout the Planning Area;	Consistent with General Plan Policy, development requirements imposed by the City will be evaluated during all Phases of Project implementation for consistency with the community's character.
NR-6.	Review development proposals with the approach that viewsheds are of two types: a) Valley-wide (natural) and, b) Within Town (urban and suburban) Accordingly, 'Valley-wide' viewsheds are from outside of town across the Planning Area while the second type 'Within Town' are primarily along streetscapes. This distinction is to be reflected in the appropriate development standards.	Consistent with General Plan Policy, development requirements imposed by the City will be evaluated from a "Within Town" viewshed along streetscapes, physical context, and location
NR-10.	Promote streetscape standards that reflect the 'town' type of view-shed, including the issue of terminated vistas or open vistas depending upon the physical context and actual location within Tehachapi.	Refer to answer in NR-6
NR23.	Establish and adopt development standards that address the following issues or situations: a. The interface between: i Urban development and the unincorporated lands intended for rural use; ii New development and cultural resources; iii New development and scenic resources or open space; b. The generation of dust, noise, odors, or chemical use.	Consistent with General Plan Policy, development standards established for the Project will address the interface with the adjacent unincorporated lands and the adjacent opens space.
NR-26.	As part of the discretionary review process for development proposals, identify significant resources through project design	Consistent with General Plan Policy, through this IS/MND significant resources are identified if they exist, and will be appropriately identified through project design.
NR-31.	Maintain planting standards that: a. minimize the need for water; b. reflect the various intended physical contexts to which they will be applied.	Consistent with General Plan Policy, permits issued with development of the Project will be reviewed in conformance with City landscaping standards. Said standards require minimization of water usage and consideration of physical context of surrounding areas among other considerations.
Policy No.	**Sustainable Infrastructure Element Policy**	**Consistency Discussion**
SI-21.	As identified in Figure 2-1 (Community Structure Plan), priority should be given to infill development located adjacent to existing infrastructure in order to decrease the need and expense for extensions of the backbone grid;	Consistent with General Plan Policy, the Project is adjacent to existing infrastructure and will decrease the need and expense of extending infrastructure.

As described, the Project is consistent with applicable General Plan policies and will not conflict with any applicable land use plan for either the City nor the adjacent County, nor any specific plan, policy, or City regulations adopted for the purpose of avoiding or mitigating environmental effects and will have a less than significant impact.

Mitigation Measures

No mitigation is warranted.

3.13 Mineral Resources

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

3.13.1 Environmental Setting and Baseline Conditions

The California Geological Survey, previously known as the California Department of Conservation Division of Mines and Geology, analyzed this region for the presence of aggregate resources in a 1988 mineral land classification report[33] and a subsequent 1999 update.[34] The land classifications presented in the survey are identified in the form of Mineral Resource Zones. The City of Tehachapi does not contain any Mineral Resource Zones within its boundaries.

3.13.2 Methodology

Determinations in evaluation of the Project's potential to affect mineral resources are formed on the basis of available public information, state and federal regulations, and Tehachapi's General Plan policies.

3.13.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to mineral resources. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Natural Resources Element

Policy NR-34. Represent mineral-resource areas within the Sphere of Influence as open space or agriculture (Sectors 01, 02 on the Community Structure Plan).

3.13.3 Impact Assessment

[33] (California Department of Conservation, 1988)
[34] (California Department of Conservation, 1999)

XII-a) 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?

XII-b) 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?

a and b) No Impact. The Project is not located a Mineral Resource Zone. Soil types present on the Project site, as listed in **Table 3-9**, are not considered to be economically viable soils. Locally important mineral resources in the City are represented as open space or agriculture on the City's Community Structure Plan (Sectors 01, 02). The Project site is not represented as either of these Sectors and would therefore not result in any impacts associated with the loss of availability of any state, regional, or locally important mineral resource.

Mitigation Measures

No mitigation is warranted.

3.14 Noise

Noise				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
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?	☐	☐	☒	☐

3.14.1 Environmental Setting and Baseline Conditions

Sensitive receptors in the Project's vicinity consist of: Sonshine Place Preschool, located immediately southwest of the Project, and Tompkins Elementary, located approximately 0.82 miles northeast of the Project. Existing uses surrounding the Project consist of limited agricultural development, rural residences, and open space.

The Tehachapi Municipal Airport is located approximately 1.8 miles northeast of the Project. The Mountain Valley private airstrip is located approximately 1.8 miles southeast of the Project. The Project is located outside of all of the identified airport protection zones as illustrated on Tehachapi's Airport Influence Map. The Tehachapi General Plan Update EIR provided Figure 4.10-4, Existing Noise Contours for the City. The Noise Contour map identified Tucker Road and Highline Road as having noise levels of 60 decibels Community Noise Equivalent Level (dB CNEL).[35] The Project is not within noise influence areas of the Tehachapi Municipal Airport or the Mountain Valley private airstrip.

3.14.2 Methodology

Determinations in evaluation of the Project's potential to result in impacts to sensitive receptors as a result of noise generated by the Project are formed on the basis of available public information, State and federal regulations, and Tehachapi's General Plan policies.

[35] (Impact Sciences, Inc, April 2012)

3.14.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Community Safety Element

Policy CS-64. Coordinate the location of new noise-sensitive uses to their appropriate noise-environment to avoid incompatible situations such as dwellings in areas with projected noise levels greater than 75 dB CNEL. Where noise-sensitive uses are permitted in areas with 65 dB or greater, require incorporation of mitigation measures to ensure that interior noise levels do not exceed 45 dB CNEL,

Policy CS-65. Incorporate the following into Tehachapi's Noise Ordinance:

a. Require that applicants for new noise-sensitive development in areas subject to noise levels greater than 65 dB CNEL, obtain the services of a professional acoustical engineer to provide a technical analysis and design of appropriate mitigation measures;

b. Limit the maximum noise levels during evening hours from commercial/industrial development to 75 dB(A);

c. Require placement of fixed equipment, such as air conditioning units and condensers, inside or in the walls of new buildings or on roof-tops of central units in order to reduce noise impacts on any nearby sensitive receptors;

d. Maintain appropriate noise-emission standards in connection with the purchase, use, and maintenance of City vehicles;

e. Require control of noise or mitigation measures for any noise-emitting construction equipment or activity.

3.14.3 Impact Assessment

XIII-a) 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?

XIII-b) Would the project result in Generation of excessive groundborne vibration or groundborne noise levels?

a and b) Less Than Significant Impact with Mitigation Incorporated. The Project site is located in an area that creates a transition between urban and rural development and agricultural land uses. The Project involves the subdivision and development of a residential subdivision. Residential development is considered a sensitive noise receptor and is not itself considered a significant noise generator, however, the Project may include the development of a residential amphitheater at the proposed clubhouse. Established standards for noise are contained in the City's General Plan Policies CS-64 and CS-65, with both establishing 65 dB CNEL as the normally acceptable exterior noise criteria for sensitive receptors.

Development of an amphitheater within the subdivision's open space or common area adjacent to the clubhouse has the potential to result in the generation of noise levels, including groundborne noise levels that could exceed the acceptable exterior noise level standards established in the General Plan. The specific design of a future amphitheater will be determined at a later date and will be subject to further evaluation. The General Plan provides that applicants for new noise-sensitive development in areas subject to noise levels greater than 65 dB CNEL, obtain the services of a professional acoustical engineer to provide a

technical analysis and design of appropriate mitigation measures. This General Plan policy could also be applied to a new noise generating land use located in an area having noise-sensitive development. Through compliance with General Plan policies related to noise-sensitive development, and incorporating MM NOI-1 and MM NOI-2, the Project would have less than significant impact relative to temporary, permanent and groundborne noise generation related to a future amphitheater.

Activities associated with construction could result in temporary elevated noise levels and groundborne vibration, with maximum construction noise levels ranging between 74 dBA to 89 dBA at 50 feet distance.[36] The construction noise is anticipated to be above acceptance standards. Typical construction equipment would include backhoes, tractors, air compressors, scrapers, pavers, concrete mixers, and numerous other miscellaneous tools and equipment. Construction of the Project would result in increased noise levels in the immediate vicinity. Implementation of usual and customary noise control measures, such as the installation of mufflers or engine casings, would result in noise reduction of 5-10 dBA per source. Shielding provided by natural or human-made features, noise barriers, and distance would further reduce construction noises for outside noise levels to acceptable noise levels of 65 dBA. Project generated construction noise would be short in duration. In addition, pursuant to Tehachapi Municipal Code, would be restricted to daylight hours.

Construction activities would be regulated by Tehachapi Municipal Code. Impacts related to the Project's generation of noise and groundborne vibration both during construction would be reduced by natural or human made barriers, distance, and through adherence to existing regulations. Impacts related to the Project's generation of noise during its operation would be considered less than significant without implementing regulations or mitigation.

Mitigation Measures

> **NOI-1: (Technical Analysis and Design)** Prior to issuance of a building permit for improvements associated with an amphitheater, the Project proponent shall obtain a technical analysis of the amphitheater design to ensure that exterior noise levels do not exceed 65 DB at the nearest residential property line.
>
> **NOI-2: (Prohibition of amplified equipment)** Outdoor amplified electrical equipment and music shall be prohibited in exterior areas of the future clubhouse and/or amphitheater.

XIII-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? and,

c) Less Than Significant Impact. Portions of the Project site are located within 2-miles of the Tehachapi Municipal Airport and the Mountain Valley private airstrip. The Project is located outside of all of the identified airport protection zones as illustrated on Tehachapi's Airport Influence Map and is not within identified noise contours of either airport. As the Project will not expose people residing or working on the Project site to excessive noise levels, Project impacts would be less than significant.

Mitigation Measures

> No mitigation is warranted.

[36] (U.S. Department of Transportation, 2019)

3.15 Population and Housing

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

3.15.1 Environmental Setting and Baseline Conditions

As reported in the City's 2015-2023 Housing Element (Housing Element), population growth between 2000 and 2010 occurred at an average annual growth rate of about 3.2 percent (31.6 percent total increase).[37] The allocation need for new housing units was determined in the Housing Element to be 495 units by 2023, of which 12 were anticipated to start between January 2013 and January 2015. Approximately 483 remaining housing units were identified as needed between 2015 and 2023.[38]

Table 2-2.1: Development Potential, discussed in the City's General Plan, identified 3,116 existing housing units in 2009 with a development potential of up to 5,319 housing units in 2035.[39] The number of persons per household was estimated at approximately 2.63 in the General Plan. The U.S. Census Bureau indicates that there were approximately 2.59 persons per household in the City between 2014-2018 and 3,319 housing units.[40]

3.15.2 Methodology

Determinations in evaluation of the Project's potential to result in rely on information contained in the City's Housing Element, available public information, state and federal regulations, and Tehachapi's General Plan policies.

3.15.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption: *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

[37] (Lisa Wise Consulting, December 2015), p.18.
[38] (Lisa Wise Consulting, December 2015), Table 4-2, p. 44.
[39] (Impact Sciences, Inc, April 2012)
[40] (United States Census Bureau, 2020)

Town Form Element

Policy TF-61. Approve development at an average annual rate of two (2) percent over the planning horizon as identified in Table 2-2 with procedures that allow the distribution of prior year's and future year's unused growth potential subject to City Council approval (in reference to Table 2-2: Development Potential of the General Plan).

3.15.3 Impact Assessment

XIV-a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

a) Less Than Significant Impact. Implementation of the Project would result in the construction of up to 237 single-family residential units. Using the more conservative estimate between the City's General Plan and the U.S. Census, the Project would result in an increase in the City's population of approximately 623 people.

The General Plan considered a buildout horizon of year 2035 with a total development potential of 5,319 housing units. The Project, which when added to existing number of housing units, would bring the City's total number of housing units to 5,912 housing units. Housing and growth estimates displayed in **Table 3-15** are intended to illustrate cumulative growth planned by other approved Projects plus the Proposed Project. No development outside of currently approved Projects and this Proposed Project is either included or illustrated in this estimate.

Table 3-15 Housing and Population Growth Estimates

Housing and Population Growth Estimates				
Year, Source	Number Units Planned/Yr	Cumulative No. Units	Number Persons	Percent Growth/yr
2009 – General Plan	**3,116** [1]	**3,116**	**8,195**	**baseline**
2014-2018- U.S. Census	**3,319** [2]	**3,319**	**8,729**	**1%**
2020- Proposed Project plus [3, 4]	366	3,319	9,697	4%
2021- Proposed Project plus [3]	367	3,686	10,659	3%
2014-2018- U.S. Census	368	4,054	11,625	3%
2020- Proposed Project plus [3, 4]	367	4,421	12,592	3%
2021- Proposed Project plus [3]	363	4,784	13,558	3%
2025- Proposed Project plus [3]	362	5,146	14,512	2%
2026- Proposed Project plus [3]	364	5,510	15,464	2%
2027- Proposed Project plus [3]	359	5,869	16,422	2%
2028-Project	23	5,892	17,366	1%
2029-Project	26	5,918	17,426	1%
2030-Project	24	5,942	17,495	1%
Total Housing Units/Persons	**3,556**	**5,942**	**17,495**	

Notes:
1. Table 2-2.1: Development Potential
2. United States Census Bureau, April 2020
3. Approved Housing Units from Cumulative Projects, **Table 2-2**

Population growth illustrated in **Table 3-15** would insignificantly exceed the population growth projected in the City's General Plan; however, the General Plan provides for procedures to allow the distribution of prior year's and future year's unused growth potential subject to City Council approval. Approval of Projects does not necessarily equate to approval of development. Because market conditions will influence development and the demand for housing, all of the housing units that have received approval may not be developed. Therefore, relative to growth previously anticipated, currently approved, and the potential the Project's contribution to population growth, the Project would have a less than significant impact.

XIV-b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

b) No Impact. The subject property does not contain any existing residences and therefore, will not displace any housing or people.

Mitigation Measures

No mitigation is warranted.

3.16 Public Services

Public Services				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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 other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

3.16.1 Environmental Setting and Baseline Conditions

Fire Protection: The closest existing Fire Department is Station No. 12, Located at 800 Curry Street, northeast of the Project site.

Police Protection: The closest existing City of Tehachapi Police Department is in downtown Tehachapi, northeast of the Project. The City has a joint-powers agreement with the County of Kern for both police and fire protection in the event such services are needed.

Schools: The Project is located in the Tehachapi Unified School District. Tompkins Elementary School is located approximately 0.82 miles northeast of the Project.

Parks: Warrior Park is located approximately 0.5 miles east of the Project.

Landfills: The Tehachapi Sanitary Landfill, located at 12001 Tehachapi Boulevard, serves the City.

3.16.2 Methodology

Determinations in evaluation of the Project's potential to result in impacts to public services are formed on the basis of available public information, State and federal regulations, and Tehachapi's General Plan policies.

3.16.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related provision of public services. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Public Realm Element

Policy PR-10. Coordinate open space types with the appropriate physical context they are intended to serve,

Policy PR-11. Coordinate the subdivision standards with the open space types and standards identified in Table 2-7,

Policy PR-12. Coordinate the parkland dedication credit with the open space types identified in Table 2-7,

Policy PR-13. As practical, provide additional recreational, cultural and non- school related opportunities through agreements with public and/or private institutions for the joint-use of natural open space (including seasonal detention basins and school playgrounds),

Policy PR-14. Develop a program that requires new residential development to dedicate land, pay in-lieu fees, or otherwise contribute its fair share toward the acquisition and development of parks and/or recreation facilities to meet the community's service goals,

Policy PR-15. Coordinate the development of parks and community recreation facilities/services with the pace of new development/ investment.

3.16.3 Impact Assessment

XV-a) 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 other performance objectives for any of the public services:

a) Less Than Significant Impact.

Fire Protection: The Preliminary review of the Project included consideration of fire protection for the Project. The Fire Department's review indicated that the Project is within acceptable restrictions for fire response, as the Project is within two miles of Fire Station No. 12. No additional need for fire facilities is necessary. The Project's Conditions of Approval will include requirements for installation of new fire hydrants and specifications for required fire flows. Subject to Fire Department review and with incorporation of the fire related conditions, the Project will have a less than significant impact on fire service facilities and will not warrant the need for new or physically altered fire facilities to maintain acceptable service ratios and meet performance objectives.

Police Protection: The City of Tehachapi's Police Department, is located at 220 W. C Street, approximately two miles northeast of the Project site. Within surrounding unincorporated areas, the City has a joint-powers agreement with the Kern County for sheriff's service. While the Project may result in the need for additional police staff, the police facility is adequate in size to support additional officers, and within a distance that would allow the department to maintain acceptable response times. Therefore, the Project will have a less than significant impact on police facilities and will not warrant the need for new or physically altered police facilities to maintain acceptable service ratios and meet performance objectives.

Schools: The Project is located in the Tehachapi Unified School District. The Project would generate approximately 286 students, distributed as follows:

Table 3-16 Project Student Generation

Project Student Generation			
Grades	Students/ Dwelling Unit[41]	Proposed	
		Dwelling Units	Students
K-5	0.5	237	119
6-8	0.5	237	119
9-12	0.2	237	48

Tompkins Elementary School has a current enrollment of 720. Tompkins Elementary is located approximately 0.82 miles northeast of the Project at 1120 S. Curry Street. Jacobsen Middle School has a current enrollment of 1,017 students. Jacobsen Middle School is located 711 Anita Drive. Tehachapi High School has a current enrollment of 1,249 students. Tehachapi High School is located at 801 S. Dennision Road. While these public schools are nearing their current capacity, the school district has planned for the construction of new schools to serve Tehachapi's growth. Development impact fees levied with Project implementation will offset the impacts of the Project and will contribute to the expansion of construction of new schools. In consideration of the Project's contribution towards new school facilities, the Project will have a less than significant impact on school facilities and will not warrant the need for new or physically altered school facilities to meet performance objectives.

Parks: The Project is located less than one mile from an existing public park. The City of Tehachapi has established park land dedication and reservation requirements and requires developer dedication or construction of facilities. To satisfy a portion of the Project Park Facilities requirement, the Project proposes to construct neighborhood open space/recreational areas within its boundaries. The open space/recreational areas would offset the open space and recreational needs of the Project. The Project developer would be required to pay in-lieu fees to meet its park land dedication and reservation requirements. As the Project includes construction of park facilities and payment of in-lieu fees to offset its impacts, the Project will have a less than significant impact on park and recreational facilities and will not warrant the need for new or physically altered park and recreational facilities to meet performance objectives.

Landfills: The Tehachapi Sanitary Landfill serves the Project area. The Tehachapi Sanitary Landfill is within the jurisdiction of the Kern County Solid Waste Management Department, which provides a comprehensive system for the management and disposal of solid waste within Kern County and regulates the recycling and composting services designed to provide waste diversion. The Tehachapi Sanitary Landfill currently has sufficient capacity to serve Tehachapi residents, including the proposed Project, through year 2040.

[41] California Department of Education 2019 student generation rates.

The Project would not result in physical changes that would require new or physically altered governmental facilities or create a need for new or physically altered governmental facilities. The Project would have a less than significant impact on service ratios, response times, or other performance objectives for Public Services.

Mitigation Measures

No mitigation is warranted.

3.17 Recreation

Recreation				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

3.17.1 Environmental Setting and Baseline Conditions

The Project is within one mile of an existing public park (Warrior Park): The Tehachapi Valley Recreation and Park District manages over 299,000 acres of recreation and park areas and has adopted a long-range Planned Development for the provision of recreational services in the area. The Plan is a collective effort between the Park District, the City, Golden Hills Community Services District, Tehachapi Unified School District, TCWD, Stallion Springs Community Services District, and the residents of the Greater Tehachapi Area.

3.17.2 Methodology

Determinations in evaluation of the Project's potential to result in impacts to recreational opportunities in the area are formed on the basis of available public information, state and federal regulations, and Tehachapi's General Plan policies.

3.17.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Public Realm Element

Policy PR-10: Coordinate open space types with the appropriate physical context they are intended to serve,

Policy PR-11. Coordinate the subdivision standards with the open space types and standards identified in Table 2-7,

Policy PR-12: Coordinate the parkland dedication credit with the open space types identified in Table 2-7.

3.17.3 Impact Assessment

XVI-a) 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?

a) Less Than Significant Impact. The City of Tehachapi maintains a parks standard of three acres of parkland for each 1,000 residents. The Project is located less than one mile from an existing public park. As previously discussed in Section 3.16, the City of Tehachapi has established park land dedication and reservation requirements and requires developer dedication or construction of facilities. Park land dedication/reservation would require either dedication, reservation, or payment of in-lieu fees for each residential unit. Park Facilities require construction or payment of in-lieu fees for each residential unit. To satisfy a portion of its Park Facilities requirement, the Project proposes to construct open space/recreational facilities within its boundaries. The open space/recreational facilities would offset all or a portion of the Project's impacts related to the use of existing neighborhood and regional parks and other recreational facilities. The Project developer may also be required to pay in-lieu fees to meet its park land dedication and reservation requirements. As the Project includes construction of open space/recreational facilities and may require payment of in-lieu fees to offset its impacts, the Project will have a less than significant impact on the physical deterioration of park and recreational facilities and would not contribute to the acceleration of such deterioration.

Mitigation Measures

No mitigation is warranted.

XVI-b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

b) Less Than Significant Impact. In accordance with the City of Tehachapi Ordinance, the Project is responsible for dedication and construction of park land and park facilities. In compliance with the ordinance, the Project proposes the construction open space/recreational within the Project boundaries. Impacts related to the construction of the open space/recreational facilities within the Project boundaries are included in the physical impacts evaluated as part of the Project. However, in addition to construction of park facilities, the Project may also be responsible for the payment of in-lieu fees for park land dedication/reservation. Therefore, impacts related to the construction or expansion of recreational facilities will be less than significant.

Mitigation Measures

No mitigation is warranted.

3.18 Transportation

Transportation/Traffic				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☒	☐	☐
b) Would the project 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?	☐	☐	☒	☐

3.18.1 Environmental Settings and Baseline Conditions

The City of Tehachapi General Plan Mobility Element is intended to provide a comprehensive program of transportation planning through policies for all modes of transportation. Tehachapi sets standards for vehicle Level of Service (LOS) based on the zone district each project is located. Within the T-3 district the range of optimal LOS is between LOS "A" and LOS "C" (i.e. LOS "C" or better). At the time of General Plan adoption, pursuant to CEQA, LOS was an appropriate measure of transportation impacts. Currently, Public Resources Code Section 21099 (SB 743)), and CEQA Guidelines Section 15064.3 provide that in most cases vehicle miles travelled is the most appropriate measure of transportation impacts. Lead agencies have the discretion to choose the most appropriate methodology to analyze a project's vehicle miles traveled. CEQA Guidelines Section 15064.3(b)(4) recognizes the role for both modeling and professional judgment in estimating vehicle miles traveled. The City of Tehachapi has identified that LOS is still of value to residents of the community in evaluating safety and access. Therefore, Tehachapi projects are required to be assessed in terms of both LOS and VMT.

The City of Tehachapi Bicycle Master Plan, adopted in June 2012, identifies Tucker and Highline Roads as thoroughfares that are planned to be developed with Class II bicycle lanes along the east side of Tucker Road and the north side of Highline Road within the Project's boundaries.

3.18.2 Methodology

A report entitled *Traffic Study, Single-Family Residential Development, Northeast Corner of Tucker Road & Highline Road, Tehachapi, CA*, May 2020 (**Appendix E**) (hereafter to as the "TIS") was prepared by Ruettgers & Schuler, Civil Engineers (R&S). Pursuant to the CEQA Guidelines Section 15064.3, the study provided a qualitative analysis of the Project's impacts using vehicle miles traveled (VMT) as one measurement or metric for evaluating the Project's impacts. Consistent with City of Tehachapi General Plan policies and for

purposes of ensuring safety and access the report also evaluated the Project's impacts on the basis of Level of Service (LOS). The study evaluated traffic conditions at study intersections that may potentially be impacted by the proposed Project. Trip generation rates for the Project were obtained by R&S from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers.

R&S conducted a capacity analysis of the study intersections using Synchro 9 software from Trafficware. The Synchro 9 software utilizes the 2010 capacity analysis methodology found in the Transportation Research Board's Highway Capacity Manual.[42] The analysis was performed for the following traffic scenarios:

- Existing (2020)
- Existing +Project (2020)
- Build Year (2026)
- Build +Project (2026)
- Future Cumulative (2040)
- Future Cumulative +Project (2040)

3.18.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to transportation. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Town Form Element

Policy TF-4. Build roads and recreational trails that are rural in their appearance and function and support the intended physical environment.

Mobility Element

Policy M-1. Require new through-roadways where necessary for additional connections and congestion relief,

Policy M-2. Extended bicycle and equestrian routes where appropriate,

Policy M-3. Increase regional roadway connections to improve mobility,

Policy M-4. Plan the future roadway network in terms of right of way, location and the compatible street types for the intended physical environment and character,

Policy M-5. Reserve or acquire right-of-way for future roadway improvements consistent with the Mobility Element. Besides the Mobility Element, right-of-way may also be reserved/acquired in accordance with ordinances, plans, project conditions and the Tehachapi Region Traffic Impact Fee Program Facilities List,

Policy M-6. Maintain / generate context-related level of service standards for each street type within Tehachapi's sphere of influence,

Policy M-7. Require new development to pay its fair share of transportation improvements per the Mobility Element,

Policy M-9. Generate a local funding source for transportation maintenance,

Policy M-10. Promote the use of stop signs, road diets (i.e. reconfiguration of existing oversized streets),

[42] (Federal Highway Administration, 2014)

or roundabouts on secondary and local streets as practical,

Policy M-11. Implement traffic signals only when other traffic control measures are determined by the City to be inappropriate or unadvisable,

Policy M-18. Maintain a bicycle network that connects bikeways, including multi- use trails, with activity centers,

Policy M-19. Enable short pedestrian-crossing distances,

Policy M-20. Require pedestrian infrastructure consistent with the street hierarchy and intended physical context.

Public Realm Element

Policy PR-1. Coordinate thoroughfare standards to result in physical con- figurations that address the edge-of-town conditions throughout Tehachapi,

Policy PR-2. Incorporate bicycle and pedestrian access into all thoroughfare types, according to the intended context they are to generate or support,

Policy PR-6. Maintain thoroughfare standards that enable short pedestrian crossing distances,

Policy PR-7. Maintain bicycle access-types (class 1, 2 or 3) on all thoroughfare types including grade-separations,

Policy PR-8. Maintain development and subdivision standards that result in block length / size requirements based on their location and transect zone within Tehachapi,

Policy PR-9. Coordinate access and walkability to the range of physical contexts and locations within Tehachapi's Sphere of Influence.

Economic Vitality Element

Policy EV-21 To the extent that trip-generating uses can be absorbed/eliminated within a neighborhood(s) by introducing compatible non-residential uses, such uses as the following, should be allowed in neighborhoods provided they are within house-scale buildings and maintain compatibility with the adjacent and neighboring uses:

- Convenience retail (non-alcoholic)
- Food and beverage (non-alcoholic)
- Personal services.

3.18.1 Impact Assessment

XVII-a) Would the project conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

a) Less Than Significant Impact. The Project proposes an average of 2,300 daily vehicle trips (ADT). In accordance with the policies of Tehachapi's Mobility Element, the TIS evaluated Project impacts for purposes of making appropriate recommendations that address Tehachapi's adopted plans that affect its circulation system.

For land use projects, such as the Project, the criteria for consistency with adopted plans, policies and ordinances, would be to determine if a project would exceed an established threshold of significance. The City does not have an adopted threshold of significance for VMT and chooses to evaluate each new project from an individual perspective for this metric. The currently adopted plan, ordinance or policy addressing the

circulation system establishes a threshold of significance in the T-3 transect of LOS "C" or better for purposes of ensuring safety and access.

The TIS prepared by R&S considered the following traffic scenarios: Existing traffic conditions (years 2020, 2026 and 2040; Existing plus Project traffic conditions (years 2020, 2026 and 2040); and Existing plus Project traffic conditions (years 2020, 2026 and 2040) with Mitigation.

Table 3-17 Intersection Level of Service- PM Peak Hour

Intersection Level of Service- PM Peak Hour[43]										
Intersection	Control Type	2020	2020+ Project	2020+ Project w/ Mitigation	2026	2026+ Project	2026+ Project w/ Mitigation	2040	2040+ Project	2040+ Project w/ Mitigation
Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	C	C	NR	C	C	NR	D 50.4	E (56.6)	C
Tucker Rd & Valley Blvd	Signal	D (39.9)	D (43.9	C	E (61.2)	E (77.6)	C	F (131.2)	F (145.5)	C
Curry St & Valley Blvd	Signal	B	B		B	B	NR	C	C	NR
Tucker Rd & Highline Rd	AWSC[1]	A	B	B[1]	B	B	B[1]	C	C	NR
Curry St & Highline Rd	NB SB	B B	B B	B[1] B[1]	B B	B B	B[1] B[1]	C C	C C	NR
Dennison Ave & Highline Rd	NB SB	B B	B B	A[1] A[1]	C C	C C	A[1] A[1]	C D (26.1)	C D (27.1)	NR A[1]
AWSC: NB: Northbound	SB: Southbound NR: None Required									
1. Mitigation due to PM Peak hour LOS										

[43] (Ruettgers & Schuler, Civil Engineers, May 2020)

Table 3-18 Intersection Level of Service- AM Peak Hour

Intersection Level of Service- AM Peak Hour[44]										
Intersection	Control Type	2020	2020+ Project	2020+ Project w/ Mitigation	2026	2026+ Project	2026+ Project w/ Mitigation	2040	2040+ Project	2040+ Project w/ Mitigation
Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	B	C	NR	C	C	NR	D (38.0)	D 41.6)	C
Tucker Rd & Valley Blvd	Signal	C	C	C[1]	C	C	C[1]	D (44.1)	D (47.7)	B[1]
Curry St & Valley Blvd	Signal	B	C	NR	C	C	NR	C	C	NR
Tucker Rd & Highline Rd	AWSC[1]	D (33.6)	E (35.4)	C	E (40.1)	E (39.7)	C	E (40.2)	E (40.5)	C
Curry St & Highline Rd	NB SB	C D (29.1)	C E (36.9)	C C	C F (124.6)	D (27.5) F (182.8)	C C	E (40.7) F (>300)	E (47.5) F (>300)	C C
Dennison Ave & Highline Rd	NB SB	E (38.5) C	E (44.4) C	A A	F (80.8) F (250.1)	F (99.9) F (>300)	C C	F (>300) F (>300)	F (>300) F (>300)	B B

AWSC: SB: Southbound
NB: Northbound NR: None Required

1. Mitigation due to PM Peak hour LOS

[44] (Ruettgers & Schuler, Civil Engineers, May 2020)

The TIS concluded that the Project's contribution to exceedance of the established thresholds of LOS "C" could be mitigated through Project contributions of its equitable Fair Share of future roadway improvements:

In general, the City's General Policies for all development projects require: 1) the use of stops signs, road diets, and/or roundabouts where practical; 2) implementation of traffic signals only where other traffic control measures are determined to be inappropriate; 3) require pedestrian infrastructure to be incorporated into Project design.

The Project is located along the alignment of an adopted bicycle path. Specifically, both Tucker Road and Highline Road are the alignments of planned Class II bicycle lanes. The planned Class II bicycle lanes would be striped and signed on-street travel lanes to be used exclusively for bicycles. The bicycle lanes would provide physical separation from automobile traffic. The Project would be designed to accommodate the Class II bicycle lanes and the developer would be responsible for the construction of said lanes.

Through imposition of adopted regulations and incorporation of Mitigation Measure **TRAN-1** requiring the Project to pay its fair share of roadway improvements, the Project would have a less than significant impact related to conflicts with plans, ordinances or policies addressing the circulation system, transit, roadway, bicycle and pedestrian facilities.

Mitigation Measures

> **TRAN-1:** In accordance with timelines outlined in the Project Conditions of Approval, the Project shall incorporate requirements contained in the *Traffic Study, Single-Family Residential Development, Northeast Corner of Tucker Road & Highline Road, Tehachapi, CA*, May 2020 by paying its fair share of traffic improvements and/or additional traffic mitigating conditions outlined in the traffic analysis.

XVII-b) Would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3 Subdivision (b)?

b) Less than Significant Impact. An evaluation of VMT for Project generated traffic was conducted by R&S based on applicable the CEQA guidelines, Section 15064.3. The analysis involved comparing an estimate of VMT attributable to the project to a baseline VMT for the greater Tehachapi area and assessing whether project VMT would result in a significant transportation impact.

Several factors were taken into consideration when estimating Project VMT, including proposed land use, Project trip type and distribution, and location of other similar land developments. Given the Project's close proximity to SR 202, it is estimated that 60 percent of traffic generated by the project would be non-local trips. These trips are anticipated to use Route SR 202 to travel to Bakersfield or Mojave. Local trips would make up 40 percent of project traffic

As shown in **Table 3-18**, it is anticipated that the Project will result in a weighted average VMT of 28.85 miles per vehicle per day. An average daily VMT of 39.35 miles was obtained from the Kern Council of Governments (KernCOG) for use in this study. This baseline (2017) average VMT was developed based on household and employment populations in the greater Tehachapi area as well as local and regional travel patterns.

Table 3-19 Project Vehicle Miles Traveled

Project Vehicle Miles Traveled[45]			
Vehicle Trips	Local *(40% of Trips)*	Non-Local *(60% of Trips)*	
City	Tehachapi	Bakersfield	Mojave
Distance 1-way	3.25	45	20.71
# of Vehicles	93	112	28
Total VMT	303	5,612	
Weighted Average VMT/Trip		**28.85**	

As demonstrated in **Table 3-19,** the average project VMT of 28.85 miles per vehicle per day is a 26 percent reduction from the baseline average of 39.35 VMT . Therefore, the project is not expected to result in a significant transportation impact and would not be in conflict with CEQA Guidelines Section 15064.3.

Mitigation Measures

No mitigation is warranted.

XVII-c) 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)?

XVII-d) Would the project result in inadequate emergency access?

c and d) Less Than Significant Impact. A Preliminary Development Plan of the Project has been reviewed by all Development Services Departments and the Fire Department to ensure that the Project would not hazards due to dangerous curves, incompatible uses or inadequate emergency access. The Project has been appropriately conditioned to ensure that curve radii, street widths and transitions conform to safety standards, and to ensure that street signalization appropriately addresses traffic generated by the Project and traffic patterns in the area.

Mitigation Measures

No mitigation is warranted.

[45] (Ruettgers & Schuler, Civil Engineers, May 2020)

3.19 Tribal Cultural Resources

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

3.19.1 Consultation with California Native American Tribes

Public Resources Code Section 21080.3.1, *et seq.* (codification of AB 52, 2013-14)) requires that a lead agency, within 14 days of determining that an application for a project is complete or determining that it will undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to initiate a request for formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement will be made.

3.19.2 Methodology

A report entitled *Phase I Cultural Resources Survey, APN 417-011-15, Tehachapi, Kern County, California* dated February 2020 (**Appendix C)** was prepared by ASM Affiliates. The report documents the efforts to perform Tribal Consultation which include: 1) certification that a records search was conducted at the Native

American Heritage Commission (NAHC) Sacred Lands Files by NAHC staff to determine whether sacred sites or tribal cultural resources are present within the Project area; and 2) documentation of tribal outreach conducted with tribes with known affiliates in the area: the Big Pine Paiute Tribe of the Owens Valley, Chumash Council of Bakersfield, Kern Valley Indian Community - Lake Isabela, Kitanemuk & Yowlumne Tejon Indians, and the San Manuel Band of Mission Indians. Written notification was mailed to each of the tribes on January 22, 2020. A follow-up email was sent to the tribes on February 4, 2020.

The NAHC provided a list of sites within the Project's vicinity, however because the sites are considered Confidential Information, the list is redacted from **Appendix C**. No listed sites are within the boundaries of the Project site. Of the five Native American tribes with known affiliations in the area, only the San Manuel Band of Mission Indians responded, indicating that the Project is outside of its ancestral territory and waiving consultation. As of February 22, 2020, no responses or requests for consultation were received from the remaining four tribes.

Determinations in evaluation of the Project's potential to result in hazards or generate hazardous materials are formed on the basis of available public information, state and federal regulations, and Tehachapi's General Plan policies.

3.19.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Natural Resources Element

Policy NR-18. Work with Kern County to maintain a diverse network of open land encompassing particularly valuable rural and agricultural resources, connected with the landscape around the urban area. Particularly valuable resources include but are not limited to the following:

- Historically open-space settings for cultural resources, native and traditional landscapes,

Policy NR-42. Maintain a step in the development process for evaluating the potential for archaeological and paleontological resources,

Policy NR-43. Maintain that excavation, exploration and documentation of archaeological and paleontological sites be conducted only by recognized authorities by applicable State laws,

Policy NR-44. Maintain that in the event of discovering an archaeological or paleontological site, that the appropriate authorities and parties be notified according to established procedures and applicable State laws.

3.19.3 Impact Assessment

XVIII-a) 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:

XVIII-a-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)

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

a-i and ii) Less Than Significant Impact with Mitigation Incorporated. On January 22, 2020, ASM Affiliates, on behalf of the City, sent Notification of a Decision to Undertake a Project/Consultation Opportunity to the five tribes with known affiliations in the Tehachapi area (the Big Pine Paiute Tribe of the Owens Valley, Chumash Council of Bakersfield, Kern Valley Indian Community - Lake Isabela, Kitanemuk & Yowlumne Tejon Indians, and the San Manuel Band of Mission Indians), via certified mail/return receipt. The notification included a map of the area, and a description of the Project. In accordance with the law, the letter provided 30 days from receipt of the letter to request consultation in writing. In addition, follow-up emails were sent to each tribe. As of February 22, 2020 no tribes have requested consultation; therefore, it may be assumed that no tribe considers the Project site to contain significant tribal cultural resources.

The City of Tehachapi has no substantial evidence that tribal resources meeting the criteria set forth in forth in subdivision (c) of Public Resources Code Section 5024.1. As a result, less than significant impacts to tribal resources are expected. **MM CULT-2**, described above in Section 3.6, is recommended in the unlikely event cultural materials or human remains of Native American descent are unearthed during excavation or construction.

Mitigation Measures

Refer to MM CULT-2.

3.20 Utilities and Service Systems

Utilities and Service Systems				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental 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 which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
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 reductions goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.20.1 Environmental Setting and Baseline Conditions

3.20.1.1 Water Supply

As previously stated in **Section 3.11**, the City's water supply derives from groundwater and SWP water sources, with limited amounts of recycled or reclaimed water for non-potable uses.

3.20.1.2 Wastewater Collection and Treatment

Wastewater would be collected via City maintained sewer lines and transmitted to facilities operated by the City's Development Services Departments. The Project will be served by the City's Wastewater Treatment Facility (WWTF). The WWTF has a permitted capacity of 1.25 million gallons per day (mgd) with the potential to expand to 2.5 mgd.

3.20.1.3 Solid Waste Disposal

Solid waste generated by the Project would be collected by Waste Management, Inc. Solid waste is taken to the Tehachapi Sanitary Landfill located at 12001 Tehachapi Blvd. The landfill has a maximum permitted

capacity of 4,000,000 cubic yards, with last reported remaining capacity of 522,298 cubic yards.[46] The landfill currently has sufficient capacity to serve the Project. The Project is not anticipated to generate solid waste in excess of State or local standards.

3.20.2 Methodology

Determinations in evaluation of the Project's potential to result in impacts to utilities or service systems are formed on the basis of available public information, state and federal regulations, and Tehachapi's General Plan policies.

3.20.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to utilities and service systems. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Town Form Element

Policy TF-60: Approve development projects only when consistent with the allowed water availability,

Sustainable Infrastructure Element

Policy SI-26: Private development is responsible for installing all local water and sewer lines within a development,

Policy SI-27: Encourage all new development to include opportunities for recycling on-site,

Policy SI-28: Encourage recycling at all scales of development; Encourage recycling at all scales of development.

3.20.3 Impact Assessment

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

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

a-b) Less Than Significant Impact. The City implements a City-wide program for completion of incremental expansions to facilities for planned water supply, sewer treatment, and stormwater drainage. The City's Development Services Departments will appropriately condition the Project to require the installation of water and sewer infrastructure to provide service to the subdivision and payment of development impact fees to offset the Project's incremental water usage. In addition, the City requires developers to identify a water source for each new subdivision.

[46] (CalRecycle, 2020)

The City has sufficient water supplies available to serve the Project and its existing commitments during normal, dry, and multiple dry years. The Project must comply with the requirements of all Development Services Departments for the construction of water, wastewater, and storm water drainage infrastructure.

SoCal Edison and The Gas Co, electric and gas service providers for the area, incrementally expand and update their service systems as needed to serve their users. Similarly, the telecommunications providers in the area incrementally expand and update their service systems in response to usage and demand. The developer will be responsible for planning and installing wastewater collection and water delivery systems, as well as electrical and telecommunications service infrastructure. In addition, the developer will be responsible for the payment of development impact fees to offset potential impacts to these facilities resulting in less than significant impacts.

Mitigation Measures

No mitigation is warranted.

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

c) Less Than Significant Impact. The Project will be served by the City's WWTF. The WWTF has a permitted capacity of 1.25 mgd with average monthly flow below 1.07 mgd, daily flow. The WWTF has adequate capacity to serve the Project in addition to its existing commitments with the potential to expand up to 2.5 mgd. Therefore, the Project will have a less than significant impact.

Mitigation Measures

No mitigation is warranted.

XIX-d) 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?

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

d-e) Less Than Significant Impact. Solid waste generated by the Project would be collected by Waste Management, Inc. Solid waste is taken to the Tehachapi Sanitary Landfill located at 12001 Tehachapi Boulevard. The landfill has sufficient capacity to serve the Project. The Project is not anticipated to generate solid waste in excess of state or local standards.

Applicable reduction statues, State-mandated AB 939, requires California jurisdictions to achieve a 50 percent reduction in the amount of waste sent to landfills. The Project would be provided with green, gray and blue containers to allow residents to sort waste in furtherance of waste reduction efforts. The Project would be expected to comply with these reduction statutes and regulations. Consequently, the Project would have a less than significant impact.

Mitigation Measures

No mitigation is warranted.

3.21 Wildfire

Wildfire				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
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 uncontrollable spread of 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?	☐	☐	☐	☒

3.21.1 Environmental Setting and Baseline Conditions

The Project is located in the City of Tehachapi. The Office of the State Fire Marshal, a program of CAL FIRE, updated and adopted Fire Hazard Severity Zone maps for each county in 2007. The agency used various types of data to map out these zones, which are ranked either Very High, High, or Moderate Fire Hazard Severity. All of these adopted zones apply to "State Responsibility Areas," which include land under the jurisdiction of state agencies and counties. Soon after, Cal Fire recommended "Local Responsibility Areas" to jurisdictions, cities, towns, etc. the same methods.

Although the Project is located within the City of Tehachapi, surrounding areas are unincorporated and within the jurisdiction of the County of Kern. Kern County adopted a Fire Hazard Reduction Program (FHRP), as a joint effort between Kern County, CAL FIRE, and the Kern County Code Enforcement division under Kern County Ordinance Code 8.46. The Project site itself is not designated as either a Very High Severity Zone or a State Responsibility Area . However, as depicted on **Figure 3-2**, State Responsibility Areas are located near the Project (adjacent to the northwest and adjacent to the south). There are no CAL FIRE designated Very High Severity Zones with a 15-mile radius of the Project.

The Project site is generally surrounded by developed parcels, undeveloped parcels, and agricultural land. The developed parcels contain scattered single-family residences to the east and southeast.

3.21.2 Methodology

Determinations in evaluation of the Project's potential to result in hazards or generate hazardous materials are formed on the basis of available public information, State and federal regulations, and Tehachapi's General Plan policies.

3.21.2.1 Applicable General Plan Policies

The City of Tehachapi implements the following policies that are applicable to the Project related to energy consumption. *Note: only those policies that are applicable to the Project and are capable of being implemented by the Project are listed below.*

Community Safety Element

Policy CS-21: Require that, as relevant, new development applications include a map that identifies areas of wildfire hazard,

Policy CS-22. Require adequate fire flow and emergency access,

Policy CS-23. Maintain fuel modification zones between developed areas and natural areas. Fuel Modification Zones shall be maintained at private expense or through a maintenance district and on private property according to the applicable standards and regulations of the Kern County Fire Department,

Policy CS-24. Require fire-resistant building materials for all structures,

Policy CS-25. Require automatic fire sprinklers for development in:

a. Areas identified in the T-2, T-2.5 or T-3,

b. Areas exceeding 5 percent slope.

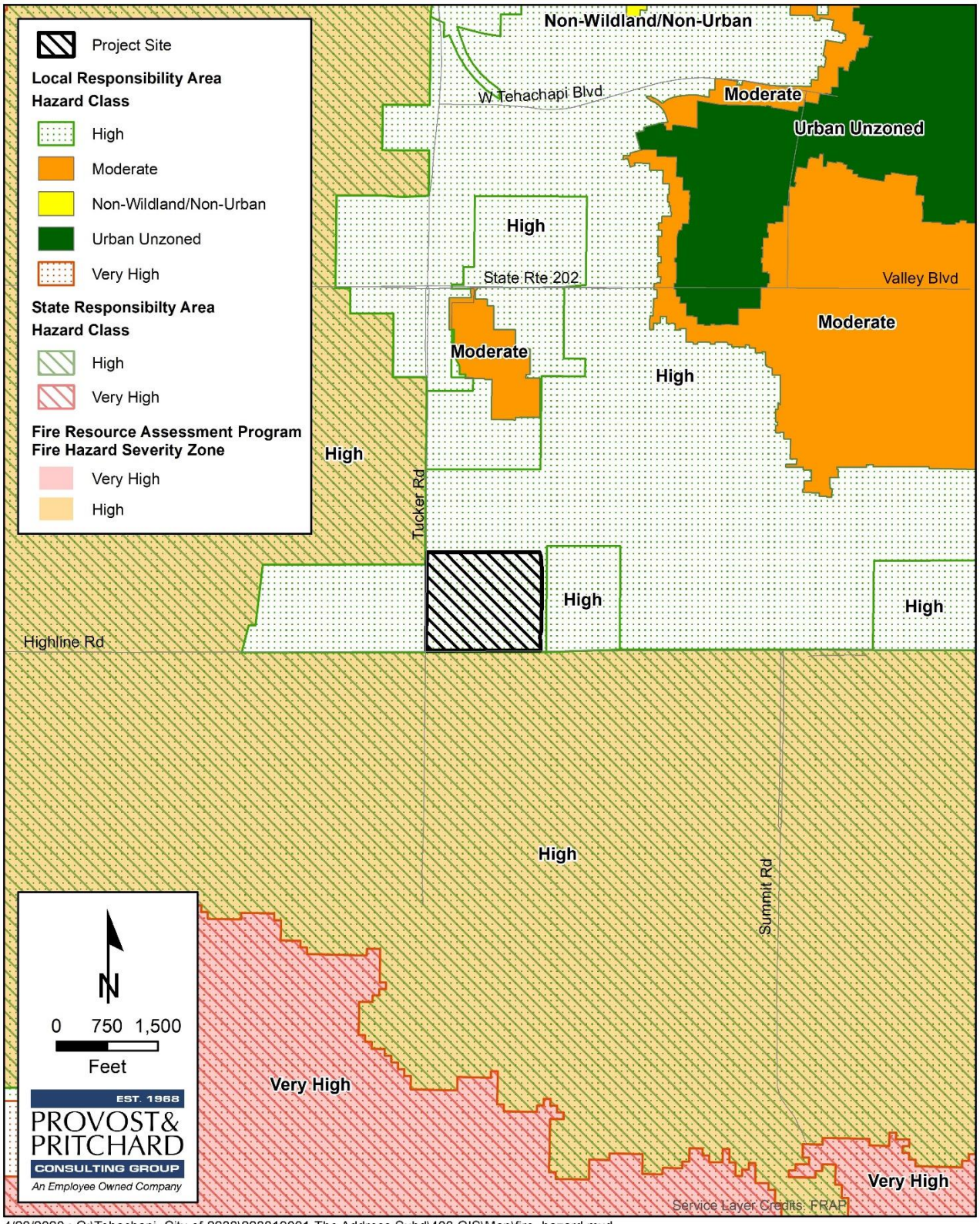


Figure 3-2 Wildfire Hazard Map

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

XX-a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

a) Less Than Significant Impact. The City of Tehachapi maintains a mutual aid agreement with Kern County to provide for emergency operations within its jurisdiction. Kern County adopted an Emergency Operations Plan and operates the Standardized Emergency Management System (SEMS). The Emergency Operations Plan was comprehensively adopted in August 2008, but various chapters of the plan are routinely updated as necessary. The SEMS document outlines the management of fire and rescue, law enforcement, medical coordination, and organizations involved in emergency responses.

Relative to emergency evacuation, the City of Tehachapi is responsible for ensuring adequate emergency ingress and egress are maintained within the area. The City, in conjunction with the Kern County Fire Department, would investigate the addition of new fire stations where needed. The Project has access to major arterial roads and highways located within its vicinity to allow for numerous routes of travel after exiting the subdivision. The Project would construct roadways to City of Tehachapi standard. Said roadways would be designed to ensure that proper ingress and egress for emergency vehicles, as well as to allow for evacuation by private individuals is accomplished. The construction of new homes proposed by the Project would not impair or inhibit successful evacuation in the event of an emergency or wildfire. New infrastructure proposed by the Project, such as fire hydrants and the construction of an adequate water supply to serve the Project would result in less than significant impacts in the event of a wildfire or any other emergency.

Mitigation Measures

No mitigation is warranted.

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

b) Less Than Significant Impact with Mitigation Incorporated. The Project is located in an area that is relatively flat, having less than 50 feet of grade differential within an approximate 10-mile radius. Therefore, the degree of slope experienced within the Project's vicinity would not exacerbate wildfire. The Tehachapi area is subject to winds that may be severe; however, the Project would not contribute to or exacerbate wildfire risk as a result of winds. The Project is not located in the proximity of any large source of significant populations of invasive plants or extensive weed growth. Both City and County zoning ordinances provide for remedy to control weeds or other hazardous growths which may endanger or injure neighboring properties. To further reduce the risk of exposure to occupants and control the spread of wildfire associated with the proximity of the Project to SRAs, General Plan Policy CS-25 requires fire sprinklers on all new homes within the T-3 zone such as the Project. In addition, Mitigation Measures WF-1 and WF-2 are recommended to further reduce potential impacts. Subsequently, with incorporation of mitigation measures, the Project's contribution to the exposure of people or occupants to pollutant concentrations from wildfire or the uncontrolled spread of wildfire would be less than significant.

Mitigation Measures

WF - 1: All roof coverings on homes constructed within the subdivision shall be of Class A fire retardant materials.

WF - 2: Exterior windows, glazed doors and glazed openings shall have a minimum of one-tempered pane, glass block, or have a fire resistive rating of not less than 20 minutes when tested in accordance with ASTM standards or the performance requirements of the Office of the State Fire Marshal

XX-c) 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?

c) Less Than Significant Impact. The Project would construct roads for purposes of providing ingress and egress to the Project site; and fire hydrants for purposes of providing a water source for all purposes including emergency water; power lines and utility connections to serve the Project. Said infrastructure, constructed to provide services in support of the Project would not exacerbate the risk of fire nor result in temporary or ongoing impacts to the environment. The Project will not require the installation or maintenance of fuel breaks. Impacts resulting from these types of infrastructure serving the Project would be less than significant.

Mitigation Measures

No mitigation is warranted.

XX-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?

d) No Impact. The Project would be graded to result in less than 2% slope. As previously discussed, the surrounding topography is relatively flat. As the Project is relatively flat it is not subject to the risk of downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Therefore, there would be no impacts.

Mitigation Measures

No mitigation is warranted.

3.22 CEQA Mandatory Findings of Significance

Mandatory Findings of Significance				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Does the project have the potential to 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 considerable 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 which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

XXI-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?

a) Less than Significant Impact with Mitigation Incorporated**.** The analysis conducted in this Initial Study/Mitigated Negative Declaration results in a determination that the Project, with incorporation of mitigation measures, will have a less than significant effect on the environment. The potential for impacts to agricultural resources, biological resources, cultural resources, geological, population/growth, transportation and tribal cultural resources from the implementation of the proposed Project will be less than significant with the incorporation of the mitigation measures discussed in this analysis. Accordingly, the proposed Project will involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory.

Mitigation Measures

Refer to MM BIO-1 through BIO-3; MM CULT-1 and MM CULT-2; and MM GEO-1.

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

b) Less Than Significant Impact with Mitigation Incorporated. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The proposed Project would include a Planned Development, subdivision, and development permits for purposes of allowing the development of a new residential subdivision and associated infrastructure to connect the subdivision to the City of Tehachapi. The Project site was anticipated for urbanization with the development of the City's General Plan. Therefore, implementation of the Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the implementation of mitigation measures and basic regulatory requirements incorporated into Project design.

Mitigation Measures

Refer to MM TRAN-1.

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

c) Less than Significant Impact. The analysis conducted in this Initial Study results in a determination that the Project would have a less than a substantial adverse effect on human beings, either directly or indirectly.

Mitigation Measures

No mitigation is warranted.

3.23 Determination: (To be completed by the Lead Agency)

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 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL 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

June 10, 2020
Date

Kim Buenell, Planner
Printed Name/Position

Chapter 4 Mitigation Monitoring and Reporting Program

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for *The Address Subdivision* -Planned Development/Tentative Tract 7374. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

Table 4-1 presents the mitigation measures identified for the proposed Project. Each mitigation measure is numbered with a symbol indicating the topical section to which it pertains, a hyphen, and the impact number. For example, AIR-2 would be the second mitigation measure identified in the Air Quality analysis of the IS/MND.

The first column of **Table 4-1** identifies the mitigation measure. The second column, entitled "When Monitoring is to Occur," identifies the time the mitigation measure should be initiated. The third column, "Frequency of Monitoring," identifies the frequency of the monitoring of the mitigation measure. The fourth column, "Agency Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last columns will be used by the City to ensure that individual mitigation measures have been complied with and monitored.

Table 4-1 Mitigation Monitoring and Reporting Program

<table>
<tr><th colspan="6">Mitigation Monitoring and Reporting Program</th></tr>
<tr><th>Mitigation Measure</th><th>When Monitoring is to Occur</th><th>Frequency of Monitoring</th><th>Agency Responsible for Monitoring</th><th>Method to Verify Compliance</th><th>Verification of Compliance</th></tr>
<tr><td colspan="6">Biological Resources</td></tr>
<tr><td>BIO - 1: (Preconstruction Take Avoidance Biological Resources) No more than 30-days prior to ground disturbance within each Phase of the Project, the Project proponent shall obtain a preconstruction survey performed by a qualified biologist. The survey shall include surrounding lands within 500 feet of the Project site. The survey shall be conducted for purposes of identifying the presence of any protected plant, mammal, avian (including burrowing owls), or reptile/amphibian species and shall identify active nests within 500-feet of the Project site. A copy of the preconstruction survey shall be submitted to the Planning Department prior to ground disturbance.</td><td>No more than 30-days prior to ground disturbance within each Phase</td><td>One time prior to ground disturbance within each Phase</td><td>City of Tehachapi</td><td>Submittal of a survey report to the Planning Department</td><td></td></tr>
<tr><td>BIO - 2: (Avoidance-burrowing owls and suitable burrows): If an active burrowing owl burrow is detected, the occurrence shall be reported to the Fresno Field Office of CDFW and the CNDDB, and disturbance-free buffers shall be implemented in accordance with CDFW's 2012 Staff Report on Burrowing Owl Mitigation, as outlined in the table below:
<table>
<tr><th>Location</th><th>Time of Year</th><th colspan="3">Level of Disturbance</th></tr>
<tr><th></th><th></th><th>Low</th><th>Medium</th><th>High</th></tr>
<tr><td>Nesting sites</td><td>Apr 1 – Aug 15</td><td>200 meters</td><td>500 meters</td><td>500 meters</td></tr>
<tr><td>Nesting sites</td><td>Aug 16 – Oct 15</td><td>200 meters</td><td>200 meters</td><td>500 meters</td></tr>
<tr><td>Nesting sites</td><td>Oct 16 – Mar 31</td><td>50 meters</td><td>100 meters</td><td>500 meters</td></tr>
</table></td><td>No more than 30-days prior to ground disturbance within each Phase</td><td>One time prior to ground disturbance within each Phase</td><td>City of Tehachapi</td><td>Submittal of a survey report to the Fresno Field office and Planning Department</td><td></td></tr>
<tr><td>BIO - 3: (Construction Buffering) If nesting birds, burrowing owls, or other protected species are identified during preconstruction surveys, the qualified biologist shall determine and recommend appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. The Project proponent shall ensure that construction buffers meeting the biologist's recommendations are identified with flagging, fencing, or other easily visible means, and shall ensure that the buffers are maintained until the biologist has determined that the nestlings have fledged.</td><td>Prior to construction</td><td>One time prior to construction</td><td>City of Tehachapi</td><td>To be verified during construction inspections</td><td></td></tr>
</table>

Mitigation Monitoring and Reporting Program					
Mitigation Measure	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
Cultural Resources					
CULT-1: Should archaeological remains or artifacts be unearthed during any stage of Project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the Project proponent shall abide by recommendations of the archaeologist.	During earthmoving or construction activities	On occurrence	City of Tehachapi	Planning Approval	
CULT-2: In the event that any human remains are discovered on the Project site, the Kern County Coroner must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.	During earthmoving or construction activities	On occurrence	Kern County Coroner	Written Report	
Geology & Soils					
GEO - 1: Should fossilized remains, traces, imprints of organisms, bones or other artifacts be unearthed during any stage of Project activities, work in the area of discovery shall cease until the area is evaluated by a qualified paleontologist. If mitigation is warranted, the Project proponent shall abide by recommendations of the paleontologist. And shall report said find in accordance with the Paleontological Resource Preservation Act.	During earthmoving or construction activities	On occurrence	City of Tehachapi	Written Report Prepared in accordance with Paleontological Resource Preservation Act	
Noise					
NOI-1: (Technical Analysis and Design) Prior to issuance of a building permit for improvements associated with an amphitheater, the Project proponent shall obtain a technical analysis of the amphitheater design to ensure that exterior noise levels do not exceed 65 DB at the nearest residential property line.	Prior to issuance of building permits	One time prior to issuance of building permits	City of Tehachapi	Planning Approval/ Permit Issuance	
NOI-2: (Prohibition of amplified equipment) Outdoor amplified electrical equipment and music shall be prohibited in exterior areas of the future clubhouse and/or amphitheater.	During operation	Ongoing	City of Tehachapi	Code Enforcement	
Transportation					
TRAN-1: In accordance with timelines outlined in the Project Conditions of Approval, the Project shall incorporate requirements contained in the *Traffic Study, Single-Family Residential Development, Northeast Corner of Tucker Road & Highline Road, Tehachapi, CA*, April 2020 by paying its fair share of traffic improvements and/or additional traffic mitigating conditions outlined in the traffic analysis.	Prior to recordation of Final map	One time prior to recordation	City of Tehachapi	Planning Approval	

Mitigation Monitoring and Reporting Program					
Mitigation Measure	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
Tribal Cultural Resources					
Refer to MM CULT-2	During construction	Upon occurrence	Kern County Coroner	Submittal of a report upon occurrence	
Wildfire					
WF-1: Roof coverings shall be of fire retardant Class A materials.	Prior to Issuance of Building Permits	One time prior to issuance of permits	City of Tehachapi	Planning Approval/ Permit Issuance	
WF-2: Exterior windows, glazed doors and glazed openings shall have a minimum of one-tempered pane, glass block, or have a fire resistive rating of not less than 20 minutes when tested in accordance with ASTM standards or the performance requirements of the Office of the State Fire Marshall.	During Building Plan Check	During Building Plan Check	City of Tehachapi	Planning Approval/ Permit Issuance	

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Appendix A:

CalEEMod Emissions Modeling Results - The Address at Tehachapi - Planned Development Subdivision

THE ADDRESS AT TEHACHAPI

Construction Timeline

PHASE	#UNITS	%	ACRES	START	END	CONST DAYS
1	22	9%	5.3	09/02/20	07/04/21	305
2	23	10%	5.6	07/05/21	05/20/22	319
3	24	10%	5.8	05/20/22	04/18/23	333
4	23	10%	5.6	04/18/23	03/02/24	319
5	19	8%	4.6	03/03/24	11/21/24	263
6	18	8%	4.4	11/22/25	07/29/26	249
7	20	8%	4.8	07/30/26	05/03/27	277
8	15	6%	3.6	05/04/27	11/28/27	208
9	23	10%	5.6	11/29/27	10/13/28	319
10	26	11%	6.3	10/14/28	10/09/29	360
11	24	10%	5.8	10/10/29	09/08/30	333
TOTAL	**237**	**100%**	**57.4**			**3285**

THE ADDRESS AT TEHACHAPI
SUMMARY OF CONSTRUCTION EMISSIONS (UNMITIGATED)

YEAR	PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
2020	1	0.1072	1.0306	0.7645	0.0013	0.2156	0.1363
2020	All	0.1072	1.0306	0.7645	0.0013	0.2156	0.1363
2021	1	0.7618	1.3013	1.2733	0.0021	0.0770	0.0680
2021	2	0.1402	1.3333	1.1137	0.0019	0.2315	0.1501
2021	All	0.9020	2.6346	2.3870	0.0040	0.3085	0.2181
2022	2	0.7483	0.9170	0.9990	0.0017	0.0523	0.0456
2022	3	0.1506	1.4173	1.3487	0.0024	0.2344	0.1515
2022	All	0.8989	2.3343	2.3477	0.0040	0.2867	0.1971
2023	3	0.7506	0.6784	0.8036	0.0014	0.0377	0.0321
2023	4	0.1547	1.4378	1.5126	0.0027	0.2318	0.1492
2023	All	0.9053	2.1162	2.3162	0.0040	0.2695	0.1813
2024	4	0.6936	0.4139	0.5365	0.0090	0.0222	0.0188
2024	5	0.6906	1.4192	1.6765	0.0029	0.1440	0.1008
2024	All	1.3842	1.8331	2.2130	0.0119	0.1662	0.1196
2025	6	0.0230	0.2192	0.2268	0.0043	0.0819	0.0472
2025	All	0.0230	0.2192	0.2268	0.0043	0.0819	0.0472
2026	6	0.6655	1.4352	1.8738	0.0032	0.0686	0.0590
2026	7	0.0807	0.7431	0.9009	0.0016	0.1067	0.0686
2026	All	0.7462	2.1783	2.7747	0.0048	0.1753	0.1276
2027	7	0.6330	0.6274	0.8353	0.0014	0.0312	0.0262
2027	8	0.5385	1.0609	1.3355	0.0023	0.1222	0.0819
2027	9	0.0243	0.2414	0.2021	0.0043	0.1526	0.0848
2027	All	1.1958	1.9297	2.3729	0.0080	0.3060	0.1929
2028	9	0.4772	1.3922	1.8185	0.0031	0.0086	0.0666
2028	10	0.0456	0.4383	0.4422	0.0086	0.1720	0.1011
2028	All	0.5228	1.8305	2.2607	0.0117	0.1806	0.1677
2029	9	0.3247	0.0057	0.0092	0.0020	0.0034	0.0028
2029	10	0.8841	1.3791	1.8087	0.0031	0.0688	0.0574
2029	11	0.0484	0.4636	0.4743	0.0009	0.1785	0.1022
2029	All	1.2572	1.8484	2.2922	0.0060	0.2507	0.1624
2030	11	0.8107	0.8096	1.6397	0.0032	0.0265	0.0194
2030	All	0.8107	0.8096	1.6397	0.0032	0.0265	0.0194

THE ADDRESS AT TEHACHAPI
(Unmitigated Emissions)
SUMMARY OF OPERATIONAL EMISSIONS-AREA SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	1.6022	0.0289	1.8750	0.0031	0.2399	0.2399
2	1.6750	0.0302	1.9600	0.0032	0.2508	0.2508
3	1.7478	0.0315	2.0371	0.0034	0.2616	0.2616
4	1.6748	0.0302	1.9521	0.0032	0.2507	0.2507
5	1.3835	0.0249	1.6126	0.0027	0.2071	0.2071
6	1.3107	0.0236	1.5277	0.0025	0.1962	0.1962
7	1.4563	0.0262	1.6974	0.0028	0.2180	0.2180
8	1.0922	0.0197	1.2731	0.0021	0.1635	0.1635
9	1.6747	0.0302	1.9520	0.0032	0.2507	0.2507
10	1.8934	0.0342	2.2152	0.0037	0.0026	0.2835
11	1.7478	0.0032	2.0445	0.0034	0.2617	0.2617
Totals	**17.2584**	**0.2828**	**20.1467**	**0.0334**	**2.3028**	**2.5837**

THE ADDRESS AT TEHACHAPI
(Mitigated Emissions)
SUMMARY OF OPERATIONAL EMISSIONS-AREA SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	0.2231	0.0154	0.1694	0.0001	0.0020	0.0020
2	0.2333	0.0161	0.1770	0.0001	0.0021	0.0021
3	1.7476	0.0315	2.0371	0.0034	0.2616	0.2616
4	1.6748	0.0302	1.9521	0.0032	0.2507	0.2507
5	1.3835	0.0249	1.6126	0.0027	0.2071	0.2071
6	1.3107	0.0236	1.5227	0.0025	0.1962	0.1962
7	1.4563	0.0262	1.6974	0.0028	0.2180	0.2180
8	1.0922	0.0197	1.2731	0.0021	0.1635	0.1635
9	1.6747	0.0302	1.9520	0.0032	0.2507	0.2507
10	1.8932	0.0341	2.2067	0.0037	0.2834	0.2834
11	1.7475	0.0315	2.0366	0.0034	0.2616	0.2616
Totals	**14.4369**	**0.2834**	**16.6367**	**0.0272**	**2.0969**	**2.0969**

THE ADDRESS AT TEHACHAPI

Unmitigated Emissions

SUMMARY OF OPERATIONAL EMISSIONS-ENERGY SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	0.0036	0.3100	0.0132	0.0020	0.0025	0.0025
2	0.0038	0.0324	0.0138	0.0021	0.0026	0.0026
3	0.0040	0.0338	0.0144	0.0022	0.0027	0.0027
4	0.0038	0.0324	0.0138	0.0021	0.0026	0.0026
5	0.0031	0.0268	0.0114	0.0017	0.0022	0.0022
6	0.0030	0.0254	0.0108	0.0016	0.0021	0.0021
7	0.0033	0.0282	0.0120	0.0018	0.0028	0.0028
8	0.0025	0.0212	0.0090	0.0013	0.0017	0.0017
9	0.0038	0.0324	0.0138	0.0021	0.0026	0.0026
10	0.0043	0.0037	0.0016	0.0023	0.0030	0.0030
11	0.0040	0.0338	0.0144	0.0022	0.0027	0.0027
Totals	**0.0391**	**0.5801**	**0.1282**	**0.0214**	**0.0275**	**0.0275**

THE ADDRESS AT TEHACHAPI

Mitigated Emissions

SUMMARY OF OPERATIONAL EMISSIONS-ENERGY SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	0.0029	0.0248	0.0106	0.0002	0.0020	0.0020
2	0.0030	0.0259	0.0110	0.0002	0.0021	0.0021
3	0.0032	0.0270	0.0115	0.0002	0.0022	0.0022
4	0.0030	0.0259	0.0110	0.0002	0.0021	0.0021
5	0.0025	0.0214	0.0091	0.0001	0.0020	0.0020
6	0.0030	0.0254	0.0099	0.0002	0.0017	0.0017
7	0.0026	0.0225	0.0096	0.0001	0.0018	0.0018
8	0.0002	0.0195	0.0008	0.0001	0.0016	0.0016
9	0.0030	0.0169	0.0072	0.0001	0.0024	0.0021
10	0.0034	0.0293	0.0125	0.0002	0.0014	0.0024
11	0.0032	0.0270	0.0115	0.0002	0.0022	0.0022
Totals	**0.0301**	**0.2656**	**0.1047**	**0.0017**	**0.0215**	**0.0222**

THE ADDRESS AT TEHACHAPI
(Unmitigated)
SUMMARY OF OPERATIONAL EMISSIONS-MOBILE SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	0.0807	0.7414	0.8728	0.0036	0.2283	0.6290
2	0.0780	0.7274	0.8315	0.0037	0.2384	0.0655
3	0.0728	0.6034	0.7900	0.0038	0.2483	0.0679
4	0.0657	0.5627	0.7032	0.0035	0.2379	0.0650
5	0.0513	0.4533	0.5433	0.0028	0.1964	0.0536
6	0.0463	0.4207	0.4853	0.0026	0.1860	0.0508
7	0.0491	0.4585	0.5107	0.0029	0.2066	0.0563
8	0.0352	0.3384	0.3644	0.0021	0.1549	0.0422
9	0.0540	0.5188	0.5587	0.0032	0.2374	0.0647
10	0.0585	0.5783	0.6012	0.0036	0.2683	0.0073
11	0.0585	0.5783	0.6012	0.0036	0.2475	0.0673
Totals	**0.6501**	**5.9812**	**6.8623**	**0.0354**	**2.4500**	**1.1696**

THE ADDRESS AT TEHACHAPI
(Mitigated)
SUMMARY OF OPERATIONAL EMISSIONS-MOBILE SOURCE

PHASE	ROG	NOX	CO	SO2	PM10	PM2.5
1	0.0807	0.7414	0.8728	0.0036	0.2283	0.6290
2	0.0780	0.7274	0.8315	0.0037	0.2384	0.0655
3	0.0728	0.6034	0.7900	0.0038	0.2483	0.0679
4	0.0657	0.5627	0.7032	0.0035	0.2379	0.0650
5	0.0542	0.4649	0.5809	0.0029	0.0020	0.0020
6	0.0463	0.4207	0.4853	0.0026	0.1860	0.0508
7	0.0491	0.4585	0.5107	0.0029	0.2066	0.0563
8	0.0368	0.3439	0.3830	0.0021	0.1549	0.0422
9	0.0540	0.5188	0.5587	0.0032	0.2374	0.0647
10	0.0585	0.5783	0.6012	0.0036	0.2683	0.0073
11	0.0518	0.5274	0.5308	0.0033	0.2475	0.0673
Totals	**0.6479**	**5.9474**	**6.8481**	**0.0351**	**2.2556**	**1.1180**

Construction CO2e		
	Phase	CO2e
2020.00	1	114.43
Total		**114.43**
2021.00	1	166.78
2021.00	2	166.78
Total		**333.56**
2022.00	2	145.82
2022.00	3	206.73
Total		**352.54**
2023.00	3	118.92
2023.00	4	232.26
Total		**351.17**
2024.00	4	78.54
2024.00	5	251.59
Total		**330.13**
2025.00	6	37.71
Total		**37.71**
2026.00	6	278.35
2026.00	7	138.38
Total		**416.73**
2027.00	7	123.61
2027.00	8	201.78
2027.00	9	37.67
Total		**363.05**
2028.00	9	271.83
2028.00	10	75.14
Total		**346.97**
2029.00	9	1.33
2029.00	10	271.86
2029.00	11	80.00
Total		**273.19**
2030.00	11	274.10
Total		**274.10**
GRAND TOTAL		**3193.59**

OPERATIONAL CO2e												
	PHASE											
	1	2	3	4	5	6	7	8	9	10	11	TOTALS
AREA	15.9614	16.6869	36.6391	35.1125	29.0059	27.4793	30.5436	22.8994	35.1124	39.6923	36.639	325.7718
ENERGY	85.6955	89.5908	93.486	89.5908	74.0098	70.1145	77.905	58.4288	89.5908	101.2765	96.5727	926.2612
MOBILE	336.3985	345.1231	349.001	326.2933	269.5466	244.1816	266.1654	196.2867	300.9729	335.2368	305.4972	3274.703
WASTE	12.99	13.6085	14.2271	13.6085	11.1342	10.5157	11.7528	8.8662	13.6085	15.2580	14.2271	139.7966
WATER	11.1294	11.6353	12.1412	11.6353	9.6118	9.1059	10.1177	7.5883	11.6353	13.1530	12.1412	119.8944

The Address at Tehachapi Subdivision - Phase 1

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	22.00	Dwelling Unit	5.30	39,600.00	63

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 1-22 units/5.3 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	7.14	5.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1072	1.0306	0.7645	1.3100e-003	0.1600	0.0556	0.2156	0.0844	0.0518	0.1363	0.0000	113.6719	113.6719	0.0302	0.0000	114.4268
2021	0.8025	1.6721	1.6271	2.7000e-003	8.1100e-003	0.0907	0.0988	2.1800e-003	0.0852	0.0874	0.0000	233.6411	233.6411	0.0556	0.0000	235.0312
Maximum	**0.8025**	**1.6721**	**1.6271**	**2.7000e-003**	**0.1600**	**0.0907**	**0.2156**	**0.0844**	**0.0852**	**0.1363**	**0.0000**	**233.6411**	**233.6411**	**0.0556**	**0.0000**	**235.0312**

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					
2020	0.1072	1.0306	0.7645	1.3100e-003	0.1600	0.0556	0.2156	0.0844	0.0518	0.1363	0.0000	113.6718	113.6718	0.0302	0.0000	114.4267
2021	0.8025	1.6721	1.6271	2.7000e-003	8.1100e-003	0.0907	0.0988	2.1800e-003	0.0852	0.0874	0.0000	233.6408	233.6408	0.0556	0.0000	235.0310
Maximum	**0.8025**	**1.6721**	**1.6271**	**2.7000e-003**	**0.1600**	**0.0907**	**0.2156**	**0.0844**	**0.0852**	**0.1363**	**0.0000**	**233.6408**	**233.6408**	**0.0556**	**0.0000**	**235.0310**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	9-2-2020	12-1-2020	0.9003	0.9003
2	12-2-2020	3-1-2021	0.6511	0.6511
3	3-2-2021	6-1-2021	0.6438	0.6438
4	6-2-2021	9-1-2021	0.6419	0.6419
5	9-2-2021	9-30-2021	0.1832	0.1832
		Highest	0.9003	0.9003

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6020	0.0289	1.8677	3.1000e-003		0.2398	0.2398		0.2398	0.2398	22.7251	9.7974	32.5225	0.0212	1.7900e-003	33.5859
Energy	3.6300e-003	0.0310	0.0132	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	97.0197	97.0197	3.2100e-003	1.1800e-003	97.4517
Mobile	0.0807	0.7414	0.8728	3.6200e-003	0.2258	2.4700e-003	0.2283	0.0606	2.3200e-003	0.0629	0.0000	335.7394	335.7394	0.0264	0.0000	336.3985
Waste						0.0000	0.0000		0.0000	0.0000	5.2433	0.0000	5.2433	0.3099	0.0000	12.9900
Water						0.0000	0.0000		0.0000	0.0000	0.4548	9.1456	9.6004	0.0471	1.1800e-003	11.1294
Total	**1.6863**	**0.8013**	**2.7537**	**6.9200e-003**	**0.2258**	**0.2448**	**0.4706**	**0.0606**	**0.2447**	**0.3052**	**28.4231**	**451.7021**	**480.1252**	**0.4078**	**4.1500e-003**	**491.5555**

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	0.2231	0.0154	0.1694	9.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	15.8623	15.8623	5.6000e-004	2.9000e-004	15.9614
Energy	2.9000e-003	0.0248	0.0106	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	85.3224	85.3224	2.8900e-003	1.0100e-003	85.6955
Mobile	0.0807	0.7414	0.8728	3.6200e-003	0.2258	2.4700e-003	0.2283	0.0606	2.3200e-003	0.0629	0.0000	335.7394	335.7394	0.0264	0.0000	336.3985
Waste						0.0000	0.0000		0.0000	0.0000	5.2433	0.0000	5.2433	0.3099	0.0000	12.9900
Water						0.0000	0.0000		0.0000	0.0000	0.4548	9.1456	9.6004	0.0471	1.1800e-003	11.1294
Total	**0.3067**	**0.7816**	**1.0528**	**3.8700e-003**	**0.2258**	**6.4600e-003**	**0.2323**	**0.0606**	**6.3100e-003**	**0.0669**	**5.6980**	**446.0697**	**451.7678**	**0.3868**	**2.4800e-003**	**462.1749**

	ROG	NOx	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	**81.81**	**2.46**	**61.77**	**44.08**	**0.00**	**97.36**	**50.64**	**0.00**	**97.42**	**78.09**	**79.95**	**1.25**	**5.91**	**5.15**	**40.24**	**5.98**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 1 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/2/2020	9/15/2020	5	10	
2	Grading	Grading	9/16/2020	10/13/2020	5	20	
3	Building Construction	Building Construction	10/14/2020	8/31/2021	5	230	
4	Paving	Paving	9/1/2021	9/28/2021	5	20	
5	Architectural Coating	Architectural Coating	9/29/2021	10/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 80,190; Residential Outdoor: 26,730; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2020

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.8400e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6275	0.6275	2.0000e-005	0.0000	0.6281
Total	**3.8000e-004**	**3.0000e-004**	**2.8400e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6275**	**0.6275**	**2.0000e-005**	**0.0000**	**0.6281**

3.2 Site Preparation - 2020

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.8400e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6275	0.6275	2.0000e-005	0.0000	0.6281
Total	**3.8000e-004**	**3.0000e-004**	**2.8400e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6275**	**0.6275**	**2.0000e-005**	**0.0000**	**0.6281**

3.3 Grading - 2020

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2639	0.1605	3.0000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	26.0588	26.0588	8.4300e-003	0.0000	26.2694
Total	**0.0243**	**0.2639**	**0.1605**	**3.0000e-004**	**0.0655**	**0.0127**	**0.0783**	**0.0337**	**0.0117**	**0.0454**	**0.0000**	**26.0588**	**26.0588**	**8.4300e-003**	**0.0000**	**26.2694**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	5.1000e-004	4.7300e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0459	1.0459	4.0000e-005	0.0000	1.0468
Total	**6.3000e-004**	**5.1000e-004**	**4.7300e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0459**	**1.0459**	**4.0000e-005**	**0.0000**	**1.0468**

3.3 Grading - 2020

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2639	0.1605	3.0000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	26.0587	26.0587	8.4300e-003	0.0000	26.2694
Total	**0.0243**	**0.2639**	**0.1605**	**3.0000e-004**	**0.0655**	**0.0127**	**0.0783**	**0.0337**	**0.0117**	**0.0454**	**0.0000**	**26.0587**	**26.0587**	**8.4300e-003**	**0.0000**	**26.2694**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	5.1000e-004	4.7300e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0459	1.0459	4.0000e-005	0.0000	1.0468
Total	**6.3000e-004**	**5.1000e-004**	**4.7300e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0459**	**1.0459**	**4.0000e-005**	**0.0000**	**1.0468**

3.4 Building Construction - 2020

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	0.0604	0.5468	0.4802	7.7000e-004		0.0318	0.0318		0.0299	0.0299	0.0000	66.0089	66.0089	0.0161	0.0000	66.4114
Total	**0.0604**	**0.5468**	**0.4802**	**7.7000e-004**		**0.0318**	**0.0318**		**0.0299**	**0.0299**	**0.0000**	**66.0089**	**66.0089**	**0.0161**	**0.0000**	**66.4114**

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-004	6.2300e-003	1.4500e-003	2.0000e-005	3.8000e-004	3.0000e-005	4.1000e-004	1.1000e-004	3.0000e-005	1.4000e-004	0.0000	1.6258	1.6258	1.5000e-004	0.0000	1.6295
Worker	9.5000e-004	7.7000e-004	7.1900e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5897	1.5897	5.0000e-005	0.0000	1.5911
Total	**1.1500e-003**	**7.0000e-003**	**8.6400e-003**	**4.0000e-005**	**2.2200e-003**	**4.0000e-005**	**2.2600e-003**	**6.0000e-004**	**4.0000e-005**	**6.4000e-004**	**0.0000**	**3.2156**	**3.2156**	**2.0000e-004**	**0.0000**	**3.2206**

3.4 Building Construction - 2020

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	0.0604	0.5468	0.4802	7.7000e-004		0.0318	0.0318		0.0299	0.0299	0.0000	66.0088	66.0088	0.0161	0.0000	66.4114
Total	**0.0604**	**0.5468**	**0.4802**	**7.7000e-004**		**0.0318**	**0.0318**		**0.0299**	**0.0299**	**0.0000**	**66.0088**	**66.0088**	**0.0161**	**0.0000**	**66.4114**

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-004	6.2300e-003	1.4500e-003	2.0000e-005	3.8000e-004	3.0000e-005	4.1000e-004	1.1000e-004	3.0000e-005	1.4000e-004	0.0000	1.6258	1.6258	1.5000e-004	0.0000	1.6295
Worker	9.5000e-004	7.7000e-004	7.1900e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5897	1.5897	5.0000e-005	0.0000	1.5911
Total	**1.1500e-003**	**7.0000e-003**	**8.6400e-003**	**4.0000e-005**	**2.2200e-003**	**4.0000e-005**	**2.2600e-003**	**6.0000e-004**	**4.0000e-005**	**6.4000e-004**	**0.0000**	**3.2156**	**3.2156**	**2.0000e-004**	**0.0000**	**3.2206**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3662	200.3662	0.0483	0.0000	201.5747
Total	**0.1644**	**1.5079**	**1.4338**	**2.3300e-003**		**0.0829**	**0.0829**		**0.0780**	**0.0780**	**0.0000**	**200.3662**	**200.3662**	**0.0483**	**0.0000**	**201.5747**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0171	3.8600e-003	5.0000e-005	1.1600e-003	3.0000e-005	1.1800e-003	3.3000e-004	3.0000e-005	3.6000e-004	0.0000	4.8978	4.8978	4.3000e-004	0.0000	4.9086
Worker	2.6800e-003	2.0900e-003	0.0199	5.0000e-005	5.5800e-003	4.0000e-005	5.6200e-003	1.4800e-003	3.0000e-005	1.5200e-003	0.0000	4.6564	4.6564	1.5000e-004	0.0000	4.6601
Total	**3.2100e-003**	**0.0192**	**0.0238**	**1.0000e-004**	**6.7400e-003**	**7.0000e-005**	**6.8000e-003**	**1.8100e-003**	**6.0000e-005**	**1.8800e-003**	**0.0000**	**9.5542**	**9.5542**	**5.8000e-004**	**0.0000**	**9.5687**

3.4 Building Construction - 2021

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	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3660	200.3660	0.0483	0.0000	201.5745
Total	**0.1644**	**1.5079**	**1.4338**	**2.3300e-003**		**0.0829**	**0.0829**		**0.0780**	**0.0780**	**0.0000**	**200.3660**	**200.3660**	**0.0483**	**0.0000**	**201.5745**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0171	3.8600e-003	5.0000e-005	1.1600e-003	3.0000e-005	1.1800e-003	3.3000e-004	3.0000e-005	3.6000e-004	0.0000	4.8978	4.8978	4.3000e-004	0.0000	4.9086
Worker	2.6800e-003	2.0900e-003	0.0199	5.0000e-005	5.5800e-003	4.0000e-005	5.6200e-003	1.4800e-003	3.0000e-005	1.5200e-003	0.0000	4.6564	4.6564	1.5000e-004	0.0000	4.6601
Total	**3.2100e-003**	**0.0192**	**0.0238**	**1.0000e-004**	**6.7400e-003**	**7.0000e-005**	**6.8000e-003**	**1.8100e-003**	**6.0000e-005**	**1.8800e-003**	**0.0000**	**9.5542**	**9.5542**	**5.8000e-004**	**0.0000**	**9.5687**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	5.8000e-004	4.5000e-004	4.3100e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0093	1.0093	3.0000e-005	0.0000	1.0101
Total	**5.8000e-004**	**4.5000e-004**	**4.3100e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0093**	**1.0093**	**3.0000e-005**	**0.0000**	**1.0101**

3.5 Paving - 2021

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	5.8000e-004	4.5000e-004	4.3100e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0093	1.0093	3.0000e-005	0.0000	1.0101
Total	**5.8000e-004**	**4.5000e-004**	**4.3100e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0093**	**1.0093**	**3.0000e-005**	**0.0000**	**1.0101**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.6217**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	8.0000e-005	6.0000e-005	5.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1346	0.1346	0.0000	0.0000	0.1347
Total	**8.0000e-005**	**6.0000e-005**	**5.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1346**	**0.1346**	**0.0000**	**0.0000**	**0.1347**

3.6 Architectural Coating - 2021

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	0.6195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.6217**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	8.0000e-005	6.0000e-005	5.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1346	0.1346	0.0000	0.0000	0.1347
Total	**8.0000e-005**	**6.0000e-005**	**5.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1346**	**0.1346**	**0.0000**	**0.0000**	**0.1347**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0807	0.7414	0.8728	3.6200e-003	0.2258	2.4700e-003	0.2283	0.0606	2.3200e-003	0.0629	0.0000	335.7394	335.7394	0.0264	0.0000	336.3985
Unmitigated	0.0807	0.7414	0.8728	3.6200e-003	0.2258	2.4700e-003	0.2283	0.0606	2.3200e-003	0.0629	0.0000	335.7394	335.7394	0.0264	0.0000	336.3985

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	209.44	218.02	189.64	590,282	590,282
Total	209.44	218.02	189.64	590,282	590,282

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.538376	0.035701	0.171234	0.109086	0.018811	0.005511	0.010251	0.096845	0.001613	0.002045	0.008490	0.000880	0.001158

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	56.6126	56.6126	2.3400e-003	4.8000e-004	56.8151
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	61.0997	61.0997	2.5200e-003	5.2000e-004	61.3183
NaturalGas Mitigated	2.9000e-003	0.0248	0.0106	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	28.7098	28.7098	5.5000e-004	5.3000e-004	28.8804
NaturalGas Unmitigated	3.6300e-003	0.0310	0.0132	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	35.9200	35.9200	6.9000e-004	6.6000e-004	36.1335

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	673115	3.6300e-003	0.0310	0.0132	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	35.9200	35.9200	6.9000e-004	6.6000e-004	36.1335
Total		**3.6300e-003**	**0.0310**	**0.0132**	**2.0000e-004**		**2.5100e-003**	**2.5100e-003**		**2.5100e-003**	**2.5100e-003**	**0.0000**	**35.9200**	**35.9200**	**6.9000e-004**	**6.6000e-004**	**36.1335**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	538001	2.9000e-003	0.0248	0.0106	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	28.7098	28.7098	5.5000e-004	5.3000e-004	28.8804
Total		**2.9000e-003**	**0.0248**	**0.0106**	**1.6000e-004**		**2.0000e-003**	**2.0000e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**28.7098**	**28.7098**	**5.5000e-004**	**5.3000e-004**	**28.8804**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	191763	61.0997	2.5200e-003	5.2000e-004	61.3183
Total		**61.0997**	**2.5200e-003**	**5.2000e-004**	**61.3183**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	177680	56.6126	2.3400e-003	4.8000e-004	56.8151
Total		**56.6126**	**2.3400e-003**	**4.8000e-004**	**56.8151**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.2231	0.0154	0.1694	9.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	15.8623	15.8623	5.6000e-004	2.9000e-004	15.9614
Unmitigated	1.6020	0.0289	1.8677	3.1000e-003		0.2398	0.2398		0.2398	0.2398	22.7251	9.7974	32.5225	0.0212	1.7900e-003	33.5859

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	0.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.3804	0.0270	1.7040	3.0900e-003		0.2389	0.2389		0.2389	0.2389	22.7251	9.5306	32.2556	0.0210	1.7900e-003	33.3126
Landscaping	4.9600e-003	1.8900e-003	0.1637	1.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	0.2668	0.2668	2.6000e-004	0.0000	0.2733
Total	**1.6020**	**0.0289**	**1.8677**	**3.1000e-003**		**0.2398**	**0.2398**		**0.2398**	**0.2398**	**22.7251**	**9.7974**	**32.5225**	**0.0212**	**1.7900e-003**	**33.5859**

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	0.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1547					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5800e-003	0.0135	5.7300e-003	9.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	15.5955	15.5955	3.0000e-004	2.9000e-004	15.6881
Landscaping	4.9600e-003	1.8900e-003	0.1637	1.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	0.2668	0.2668	2.6000e-004	0.0000	0.2733
Total	**0.2232**	**0.0154**	**0.1694**	**1.0000e-004**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**15.8623**	**15.8623**	**5.6000e-004**	**2.9000e-004**	**15.9614**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.6004	0.0471	1.1800e-003	11.1294
Unmitigated	9.6004	0.0471	1.1800e-003	11.1294

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.43339 / 0.903658	9.6004	0.0471	1.1800e-003	11.1294
Total		**9.6004**	**0.0471**	**1.1800e-003**	**11.1294**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.43339 / 0.903658	9.6004	0.0471	1.1800e-003	11.1294
Total		**9.6004**	**0.0471**	**1.1800e-003**	**11.1294**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.2433	0.3099	0.0000	12.9900
Unmitigated	5.2433	0.3099	0.0000	12.9900

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	25.83	5.2433	0.3099	0.0000	12.9900
Total		**5.2433**	**0.3099**	**0.0000**	**12.9900**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	25.83	5.2433	0.3099	0.0000	12.9900
Total		**5.2433**	**0.3099**	**0.0000**	**12.9900**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 2

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	23.00	Dwelling Unit	5.60	41,400.00	66

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 2-23 units/5.6 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	230.00	200.00
tblConstructionPhase	PhaseEndDate	8/26/2022	5/13/2022
tblConstructionPhase	PhaseEndDate	7/1/2022	5/20/2022
tblConstructionPhase	PhaseEndDate	7/29/2022	5/13/2022
tblConstructionPhase	PhaseStartDate	7/30/2022	4/18/2022
tblConstructionPhase	PhaseStartDate	7/2/2022	4/18/2022
tblLandUse	LotAcreage	7.47	5.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1402	1.3333	1.1137	1.9100e-003	0.1617	0.0698	0.2315	0.0849	0.0652	0.1501	0.0000	165.7278	165.7278	0.0422	0.0000	166.7818
2022	0.7483	0.9170	0.9990	1.6700e-003	5.2600e-003	0.0470	0.0523	1.4100e-003	0.0441	0.0456	0.0000	144.9501	144.9501	0.0347	0.0000	145.8187
Maximum	**0.7483**	**1.3333**	**1.1137**	**1.9100e-003**	**0.1617**	**0.0698**	**0.2315**	**0.0849**	**0.0652**	**0.1501**	**0.0000**	**165.7278**	**165.7278**	**0.0422**	**0.0000**	**166.7818**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1402	1.3333	1.1137	1.9100e-003	0.1617	0.0698	0.2315	0.0849	0.0652	0.1501	0.0000	165.7276	165.7276	0.0422	0.0000	166.7816
2022	0.7483	0.9170	0.9990	1.6700e-003	5.2600e-003	0.0470	0.0523	1.4100e-003	0.0441	0.0456	0.0000	144.9499	144.9499	0.0347	0.0000	145.8185
Maximum	**0.7483**	**1.3333**	**1.1137**	**1.9100e-003**	**0.1617**	**0.0698**	**0.2315**	**0.0849**	**0.0652**	**0.1501**	**0.0000**	**165.7276**	**165.7276**	**0.0422**	**0.0000**	**166.7816**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-5-2021**	**10-4-2021**	0.8260	0.8260
2	**10-5-2021**	**1-4-2022**	0.6408	0.6408
3	**1-5-2022**	**4-4-2022**	0.5645	0.5645
4	**4-5-2022**	**7-4-2022**	1.0195	1.0195
		Highest	1.0195	1.0195

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6748	0.0302	1.9524	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125
Energy	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	101.4296	101.4296	3.3600e-003	1.2300e-003	101.8813
Mobile	0.0780	0.7274	0.8315	3.7100e-003	0.2361	2.3200e-003	0.2384	0.0633	2.1700e-003	0.0655	0.0000	344.4694	344.4694	0.0262	0.0000	345.1231
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**1.7566**	**0.7900**	**2.7976**	**7.1600e-003**	**0.2361**	**0.2557**	**0.4918**	**0.0633**	**0.2555**	**0.3188**	**29.7264**	**465.7032**	**495.4296**	**0.4255**	**4.3300e-003**	**507.3608**

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	0.2333	0.0161	0.1770	1.0000e-004		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003	0.0000	16.5833	16.5833	5.8000e-004	3.0000e-004	16.6869
Energy	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	89.2007	89.2007	3.0200e-003	1.0600e-003	89.5908
Mobile	0.0780	0.7274	0.8315	3.7100e-003	0.2361	2.3200e-003	0.2384	0.0633	2.1700e-003	0.0655	0.0000	344.4694	344.4694	0.0262	0.0000	345.1231
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**0.3143**	**0.7694**	**1.0194**	**3.9800e-003**	**0.2361**	**6.5000e-003**	**0.2426**	**0.0633**	**6.3500e-003**	**0.0697**	**5.9684**	**459.8148**	**465.7831**	**0.4036**	**2.5900e-003**	**476.6447**

	ROG	NOx	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	**82.11**	**2.61**	**63.56**	**44.41**	**0.00**	**97.46**	**50.67**	**0.00**	**97.51**	**78.15**	**79.92**	**1.26**	**5.98**	**5.16**	**40.18**	**6.05**

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	7/5/2021	7/16/2021	5	10	
2	Grading	Grading	7/17/2021	8/13/2021	5	20	
3	Building Construction	Building Construction	8/14/2021	5/20/2022	5	200	
4	Paving	Paving	4/18/2022	5/13/2022	5	20	
5	Architectural Coating	Architectural Coating	4/18/2022	5/13/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 83,835; Residential Outdoor: 27,945; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

The Address at Tehachapi Subdivision - Phase 2 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.7000e-004	2.5900e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6056	0.6056	2.0000e-005	0.0000	0.6061
Total	**3.5000e-004**	**2.7000e-004**	**2.5900e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6056**	**0.6056**	**2.0000e-005**	**0.0000**	**0.6061**

3.2 Site Preparation - 2021

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.7000e-004	2.5900e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6056	0.6056	2.0000e-005	0.0000	0.6061
Total	**3.5000e-004**	**2.7000e-004**	**2.5900e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6056**	**0.6056**	**2.0000e-005**	**0.0000**	**0.6061**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2474	0.1586	3.0000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2644
Total	**0.0229**	**0.2474**	**0.1586**	**3.0000e-004**	**0.0655**	**0.0116**	**0.0771**	**0.0337**	**0.0107**	**0.0443**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2644**

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	5.8000e-004	4.5000e-004	4.3100e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0093	1.0093	3.0000e-005	0.0000	1.0101
Total	**5.8000e-004**	**4.5000e-004**	**4.3100e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0093**	**1.0093**	**3.0000e-005**	**0.0000**	**1.0101**

3.3 Grading - 2021

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2474	0.1586	3.0000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2643
Total	**0.0229**	**0.2474**	**0.1586**	**3.0000e-004**	**0.0655**	**0.0116**	**0.0771**	**0.0337**	**0.0107**	**0.0443**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2643**

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	5.8000e-004	4.5000e-004	4.3100e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0093	1.0093	3.0000e-005	0.0000	1.0101
Total	**5.8000e-004**	**4.5000e-004**	**4.3100e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0093**	**1.0093**	**3.0000e-005**	**0.0000**	**1.0101**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0951	0.8716	0.8288	1.3500e-003		0.0479	0.0479		0.0451	0.0451	0.0000	115.8186	115.8186	0.0279	0.0000	116.5172
Total	**0.0951**	**0.8716**	**0.8288**	**1.3500e-003**		**0.0479**	**0.0479**		**0.0451**	**0.0451**	**0.0000**	**115.8186**	**115.8186**	**0.0279**	**0.0000**	**116.5172**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	9.9000e-003	2.2300e-003	3.0000e-005	6.7000e-004	2.0000e-005	6.8000e-004	1.9000e-004	1.0000e-005	2.1000e-004	0.0000	2.8311	2.8311	2.5000e-004	0.0000	2.8373
Worker	1.5500e-003	1.2100e-003	0.0115	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.6916	2.6916	8.0000e-005	0.0000	2.6937
Total	**1.8500e-003**	**0.0111**	**0.0137**	**6.0000e-005**	**3.9000e-003**	**4.0000e-005**	**3.9300e-003**	**1.0500e-003**	**3.0000e-005**	**1.0900e-003**	**0.0000**	**5.5227**	**5.5227**	**3.3000e-004**	**0.0000**	**5.5310**

3.4 Building Construction - 2021

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	0.0951	0.8716	0.8288	1.3500e-003		0.0479	0.0479		0.0451	0.0451	0.0000	115.8185	115.8185	0.0279	0.0000	116.5171
Total	**0.0951**	**0.8716**	**0.8288**	**1.3500e-003**		**0.0479**	**0.0479**		**0.0451**	**0.0451**	**0.0000**	**115.8185**	**115.8185**	**0.0279**	**0.0000**	**116.5171**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	9.9000e-003	2.2300e-003	3.0000e-005	6.7000e-004	2.0000e-005	6.8000e-004	1.9000e-004	1.0000e-005	2.1000e-004	0.0000	2.8311	2.8311	2.5000e-004	0.0000	2.8373
Worker	1.5500e-003	1.2100e-003	0.0115	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.6916	2.6916	8.0000e-005	0.0000	2.6937
Total	**1.8500e-003**	**0.0111**	**0.0137**	**6.0000e-005**	**3.9000e-003**	**4.0000e-005**	**3.9300e-003**	**1.0500e-003**	**3.0000e-005**	**1.0900e-003**	**0.0000**	**5.5227**	**5.5227**	**3.3000e-004**	**0.0000**	**5.5310**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0853	0.7808	0.8182	1.3500e-003		0.0405	0.0405		0.0381	0.0381	0.0000	115.8626	115.8626	0.0278	0.0000	116.5566
Total	**0.0853**	**0.7808**	**0.8182**	**1.3500e-003**		**0.0405**	**0.0405**		**0.0381**	**0.0381**	**0.0000**	**115.8626**	**115.8626**	**0.0278**	**0.0000**	**116.5566**

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	2.8000e-004	9.3200e-003	2.0300e-003	3.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	2.8095	2.8095	2.4000e-004	0.0000	2.8154
Worker	1.4400e-003	1.0800e-003	0.0105	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.5945	2.5945	8.0000e-005	0.0000	2.5964
Total	**1.7200e-003**	**0.0104**	**0.0125**	**6.0000e-005**	**3.9000e-003**	**3.0000e-005**	**3.9300e-003**	**1.0500e-003**	**3.0000e-005**	**1.0800e-003**	**0.0000**	**5.4040**	**5.4040**	**3.2000e-004**	**0.0000**	**5.4118**

3.4 Building Construction - 2022

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	0.0853	0.7808	0.8182	1.3500e-003		0.0405	0.0405		0.0381	0.0381	0.0000	115.8625	115.8625	0.0278	0.0000	116.5564
Total	**0.0853**	**0.7808**	**0.8182**	**1.3500e-003**		**0.0405**	**0.0405**		**0.0381**	**0.0381**	**0.0000**	**115.8625**	**115.8625**	**0.0278**	**0.0000**	**116.5564**

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	2.8000e-004	9.3200e-003	2.0300e-003	3.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	2.8095	2.8095	2.4000e-004	0.0000	2.8154
Worker	1.4400e-003	1.0800e-003	0.0105	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.5945	2.5945	8.0000e-005	0.0000	2.5964
Total	**1.7200e-003**	**0.0104**	**0.0125**	**6.0000e-005**	**3.9000e-003**	**3.0000e-005**	**3.9300e-003**	**1.0500e-003**	**3.0000e-005**	**1.0800e-003**	**0.0000**	**5.4040**	**5.4040**	**3.2000e-004**	**0.0000**	**5.4118**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0110**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

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	5.4000e-004	4.1000e-004	3.9200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9730	0.9730	3.0000e-005	0.0000	0.9737
Total	**5.4000e-004**	**4.1000e-004**	**3.9200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9730**	**0.9730**	**3.0000e-005**	**0.0000**	**0.9737**

3.5 Paving - 2022

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0110**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

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	5.4000e-004	4.1000e-004	3.9200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9730	0.9730	3.0000e-005	0.0000	0.9737
Total	**5.4000e-004**	**4.1000e-004**	**3.9200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9730**	**0.9730**	**3.0000e-005**	**0.0000**	**0.9737**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.6497**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

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	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1297	0.1297	0.0000	0.0000	0.1298
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1297**	**0.1297**	**0.0000**	**0.0000**	**0.1298**

3.6 Architectural Coating - 2022

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	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.6497**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

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	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1297	0.1297	0.0000	0.0000	0.1298
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1297**	**0.1297**	**0.0000**	**0.0000**	**0.1298**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0780	0.7274	0.8315	3.7100e-003	0.2361	2.3200e-003	0.2384	0.0633	2.1700e-003	0.0655	0.0000	344.4694	344.4694	0.0262	0.0000	345.1231
Unmitigated	0.0780	0.7274	0.8315	3.7100e-003	0.2361	2.3200e-003	0.2384	0.0633	2.1700e-003	0.0655	0.0000	344.4694	344.4694	0.0262	0.0000	345.1231

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	218.96	227.93	198.26	617,113	617,113
Total	218.96	227.93	198.26	617,113	617,113

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.542331	0.034995	0.171339	0.106016	0.017524	0.005301	0.010354	0.098286	0.001618	0.001995	0.008295	0.000874	0.001071

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	59.1859	59.1859	2.4400e-003	5.1000e-004	59.3976
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	63.8769	63.8769	2.6400e-003	5.5000e-004	64.1054
NaturalGas Mitigated	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
NaturalGas Unmitigated	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	703711	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759
Total		**3.7900e-003**	**0.0324**	**0.0138**	**2.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.6200e-003**	**2.6200e-003**	**0.0000**	**37.5527**	**37.5527**	**7.2000e-004**	**6.9000e-004**	**37.7759**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	562456	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
Total		**3.0300e-003**	**0.0259**	**0.0110**	**1.7000e-004**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**30.0148**	**30.0148**	**5.8000e-004**	**5.5000e-004**	**30.1932**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	200479	63.8769	2.6400e-003	5.5000e-004	64.1054
Total		**63.8769**	**2.6400e-003**	**5.5000e-004**	**64.1054**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	185756	59.1859	2.4400e-003	5.1000e-004	59.3976
Total		**59.1859**	**2.4400e-003**	**5.1000e-004**	**59.3976**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.2333	0.0161	0.1770	1.0000e-004		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003	0.0000	16.5833	16.5833	5.8000e-004	3.0000e-004	16.6869
Unmitigated	1.6748	0.0302	1.9524	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4432	0.0282	1.7814	3.2300e-003		0.2498	0.2498		0.2498	0.2498	23.7580	9.9638	33.7218	0.0219	1.8700e-003	34.8268
Landscaping	5.1600e-003	1.9700e-003	0.1710	1.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2857
Total	**1.6748**	**0.0302**	**1.9524**	**3.2400e-003**		**0.2507**	**0.2507**		**0.2507**	**0.2507**	**23.7580**	**10.2427**	**34.0008**	**0.0222**	**1.8700e-003**	**35.1125**

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.6500e-003	0.0141	5.9900e-003	9.0000e-005		1.1400e-003	1.1400e-003		1.1400e-003	1.1400e-003	0.0000	16.3044	16.3044	3.1000e-004	3.0000e-004	16.4012
Landscaping	5.1600e-003	1.9700e-003	0.1710	1.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2857
Total	**0.2333**	**0.0161**	**0.1770**	**1.0000e-004**		**2.0800e-003**	**2.0800e-003**		**2.0800e-003**	**2.0800e-003**	**0.0000**	**16.5833**	**16.5833**	**5.8000e-004**	**3.0000e-004**	**16.6869**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.0368	0.0492	1.2300e-003	11.6353
Unmitigated	10.0368	0.0492	1.2300e-003	11.6353

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.4929	0.3246	0.0000	13.6085
Unmitigated	5.4929	0.3246	0.0000	13.6085

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 3

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	24.00	Dwelling Unit	5.80	43,200.00	69

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 3-24 units/5.8 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	230.00	208.00
tblConstructionPhase	PhaseEndDate	7/13/2023	4/7/2023
tblConstructionPhase	PhaseEndDate	5/18/2023	4/18/2023
tblConstructionPhase	PhaseEndDate	6/15/2023	3/28/2023
tblConstructionPhase	PhaseStartDate	6/16/2023	3/13/2023
tblConstructionPhase	PhaseStartDate	5/19/2023	3/1/2023
tblLandUse	LotAcreage	7.79	5.80

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1506	1.4173	1.3487	2.3700e-003	0.1639	0.0705	0.2344	0.0855	0.0660	0.1515	0.0000	205.4555	205.4555	0.0508	0.0000	206.7259
2023	0.7506	0.6784	0.8036	1.3600e-003	4.9400e-003	0.0328	0.0377	1.3300e-003	0.0308	0.0321	0.0000	118.2140	118.2140	0.0282	0.0000	118.9177
Maximum	**0.7506**	**1.4173**	**1.3487**	**2.3700e-003**	**0.1639**	**0.0705**	**0.2344**	**0.0855**	**0.0660**	**0.1515**	**0.0000**	**205.4555**	**205.4555**	**0.0508**	**0.0000**	**206.7259**

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					
2022	0.1506	1.4173	1.3487	2.3700e-003	0.1639	0.0705	0.2344	0.0855	0.0660	0.1515	0.0000	205.4552	205.4552	0.0508	0.0000	206.7257
2023	0.7506	0.6784	0.8036	1.3600e-003	4.9400e-003	0.0328	0.0377	1.3300e-003	0.0308	0.0321	0.0000	118.2139	118.2139	0.0282	0.0000	118.9175
Maximum	**0.7506**	**1.4173**	**1.3487**	**2.3700e-003**	**0.1639**	**0.0705**	**0.2344**	**0.0855**	**0.0660**	**0.1515**	**0.0000**	**205.4552**	**205.4552**	**0.0508**	**0.0000**	**206.7257**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-20-2022**	**8-19-2022**	0.7264	0.7264
2	**8-20-2022**	**11-19-2022**	0.5804	0.5804
3	**11-20-2022**	**2-19-2023**	0.5548	0.5548
4	**2-20-2023**	**5-19-2023**	1.0909	1.0909
		Highest	1.0909	1.0909

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7476	0.0315	2.0371	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6391
Energy	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	105.8396	105.8396	3.5000e-003	1.2900e-003	106.3109
Mobile	0.0728	0.6034	0.7900	3.7500e-003	0.2463	2.0000e-003	0.2483	0.0661	1.8700e-003	0.0679	0.0000	348.4585	348.4585	0.0217	0.0000	349.0010
Waste						0.0000	0.0000		0.0000	0.0000	5.7426	0.0000	5.7426	0.3394	0.0000	14.2271
Water						0.0000	0.0000		0.0000	0.0000	0.4961	9.9771	10.4732	0.0514	1.2900e-003	12.1412
Total	**1.8244**	**0.6687**	**2.8415**	**7.3500e-003**	**0.2463**	**0.2664**	**0.5127**	**0.0661**	**0.2662**	**0.3323**	**31.0297**	**474.9633**	**505.9929**	**0.4391**	**4.5300e-003**	**518.3193**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7476	0.0315	2.0371	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6391
Energy	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	93.0790	93.0790	3.1500e-003	1.1000e-003	93.4860
Mobile	0.0728	0.6034	0.7900	3.7500e-003	0.2463	2.0000e-003	0.2483	0.0661	1.8700e-003	0.0679	0.0000	348.4585	348.4585	0.0217	0.0000	349.0010
Waste						0.0000	0.0000		0.0000	0.0000	5.7426	0.0000	5.7426	0.3394	0.0000	14.2271
Water						0.0000	0.0000		0.0000	0.0000	0.4961	9.9771	10.4732	0.0514	1.2900e-003	12.1412
Total	**1.8236**	**0.6619**	**2.8386**	**7.3000e-003**	**0.2463**	**0.2658**	**0.5122**	**0.0661**	**0.2657**	**0.3317**	**31.0297**	**462.2026**	**493.2323**	**0.4388**	**4.3400e-003**	**505.4944**

	ROG	NOx	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	**0.04**	**1.02**	**0.10**	**0.68**	**0.00**	**0.21**	**0.11**	**0.00**	**0.21**	**0.17**	**0.00**	**2.69**	**2.52**	**0.08**	**4.19**	**2.47**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 3 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/20/2022	6/2/2022	5	10	
2	Grading	Grading	6/3/2022	6/30/2022	5	20	
3	Building Construction	Building Construction	7/1/2022	4/18/2023	5	208	
4	Paving	Paving	3/1/2023	3/28/2023	5	20	
5	Architectural Coating	Architectural Coating	3/13/2023	4/7/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 87,480; Residential Outdoor: 29,160; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Address at Tehachapi Subdivision - Phase 3 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.3500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5838	0.5838	2.0000e-005	0.0000	0.5842
Total	**3.2000e-004**	**2.4000e-004**	**2.3500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5838**	**0.5838**	**2.0000e-005**	**0.0000**	**0.5842**

3.2 Site Preparation - 2022

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.3500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5838	0.5838	2.0000e-005	0.0000	0.5842
Total	**3.2000e-004**	**2.4000e-004**	**2.3500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5838**	**0.5838**	**2.0000e-005**	**0.0000**	**0.5842**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654
Total	**0.0195**	**0.2086**	**0.1527**	**3.0000e-004**	**0.0655**	**9.4100e-003**	**0.0749**	**0.0337**	**8.6600e-003**	**0.0423**	**0.0000**	**26.0548**	**26.0548**	**8.4300e-003**	**0.0000**	**26.2654**

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	5.4000e-004	4.1000e-004	3.9200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9730	0.9730	3.0000e-005	0.0000	0.9737
Total	**5.4000e-004**	**4.1000e-004**	**3.9200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9730**	**0.9730**	**3.0000e-005**	**0.0000**	**0.9737**

3.3 Grading - 2022

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654
Total	**0.0195**	**0.2086**	**0.1527**	**3.0000e-004**	**0.0655**	**9.4100e-003**	**0.0749**	**0.0337**	**8.6600e-003**	**0.0423**	**0.0000**	**26.0547**	**26.0547**	**8.4300e-003**	**0.0000**	**26.2654**

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	5.4000e-004	4.1000e-004	3.9200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9730	0.9730	3.0000e-005	0.0000	0.9737
Total	**5.4000e-004**	**4.1000e-004**	**3.9200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9730**	**0.9730**	**3.0000e-005**	**0.0000**	**0.9737**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1118	1.0228	1.0718	1.7600e-003		0.0530	0.0530		0.0499	0.0499	0.0000	151.7800	151.7800	0.0364	0.0000	152.6891
Total	**0.1118**	**1.0228**	**1.0718**	**1.7600e-003**		**0.0530**	**0.0530**		**0.0499**	**0.0499**	**0.0000**	**151.7800**	**151.7800**	**0.0364**	**0.0000**	**152.6891**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5000e-004	0.0183	3.9800e-003	6.0000e-005	1.3100e-003	2.0000e-005	1.3400e-003	3.8000e-004	2.0000e-005	4.0000e-004	0.0000	5.5206	5.5206	4.6000e-004	0.0000	5.5322
Worker	2.1200e-003	1.5900e-003	0.0154	4.0000e-005	4.7500e-003	3.0000e-005	4.7800e-003	1.2600e-003	3.0000e-005	1.2900e-003	0.0000	3.8237	3.8237	1.1000e-004	0.0000	3.8265
Total	**2.6700e-003**	**0.0199**	**0.0194**	**1.0000e-004**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6400e-003**	**5.0000e-005**	**1.6900e-003**	**0.0000**	**9.3443**	**9.3443**	**5.7000e-004**	**0.0000**	**9.3586**

3.4 Building Construction - 2022

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	0.1118	1.0228	1.0718	1.7600e-003		0.0530	0.0530		0.0499	0.0499	0.0000	151.7799	151.7799	0.0364	0.0000	152.6889
Total	**0.1118**	**1.0228**	**1.0718**	**1.7600e-003**		**0.0530**	**0.0530**		**0.0499**	**0.0499**	**0.0000**	**151.7799**	**151.7799**	**0.0364**	**0.0000**	**152.6889**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5000e-004	0.0183	3.9800e-003	6.0000e-005	1.3100e-003	2.0000e-005	1.3400e-003	3.8000e-004	2.0000e-005	4.0000e-004	0.0000	5.5206	5.5206	4.6000e-004	0.0000	5.5322
Worker	2.1200e-003	1.5900e-003	0.0154	4.0000e-005	4.7500e-003	3.0000e-005	4.7800e-003	1.2600e-003	3.0000e-005	1.2900e-003	0.0000	3.8237	3.8237	1.1000e-004	0.0000	3.8265
Total	**2.6700e-003**	**0.0199**	**0.0194**	**1.0000e-004**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6400e-003**	**5.0000e-005**	**1.6900e-003**	**0.0000**	**9.3443**	**9.3443**	**5.7000e-004**	**0.0000**	**9.3586**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0606	0.5538	0.6254	1.0400e-003		0.0269	0.0269		0.0254	0.0254	0.0000	89.2448	89.2448	0.0212	0.0000	89.7756
Total	**0.0606**	**0.5538**	**0.6254**	**1.0400e-003**		**0.0269**	**0.0269**		**0.0254**	**0.0254**	**0.0000**	**89.2448**	**89.2448**	**0.0212**	**0.0000**	**89.7756**

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	2.6000e-004	8.3600e-003	2.0000e-003	3.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	3.1648	3.1648	2.0000e-004	0.0000	3.1698
Worker	1.1600e-003	8.4000e-004	8.2400e-003	2.0000e-005	2.7900e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.1630	2.1630	6.0000e-005	0.0000	2.1645
Total	**1.4200e-003**	**9.2000e-003**	**0.0102**	**5.0000e-005**	**3.5600e-003**	**3.0000e-005**	**3.5900e-003**	**9.6000e-004**	**3.0000e-005**	**9.9000e-004**	**0.0000**	**5.3278**	**5.3278**	**2.6000e-004**	**0.0000**	**5.3343**

3.4 Building Construction - 2023

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	0.0606	0.5538	0.6254	1.0400e-003		0.0269	0.0269		0.0254	0.0254	0.0000	89.2447	89.2447	0.0212	0.0000	89.7755
Total	**0.0606**	**0.5538**	**0.6254**	**1.0400e-003**		**0.0269**	**0.0269**		**0.0254**	**0.0254**	**0.0000**	**89.2447**	**89.2447**	**0.0212**	**0.0000**	**89.7755**

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	2.6000e-004	8.3600e-003	2.0000e-003	3.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	3.1648	3.1648	2.0000e-004	0.0000	3.1698
Worker	1.1600e-003	8.4000e-004	8.2400e-003	2.0000e-005	2.7900e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.1630	2.1630	6.0000e-005	0.0000	2.1645
Total	**1.4200e-003**	**9.2000e-003**	**0.0102**	**5.0000e-005**	**3.5600e-003**	**3.0000e-005**	**3.5900e-003**	**9.6000e-004**	**3.0000e-005**	**9.9000e-004**	**0.0000**	**5.3278**	**5.3278**	**2.6000e-004**	**0.0000**	**5.3343**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

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-004	3.6000e-004	3.5700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9364	0.9364	3.0000e-005	0.0000	0.9370
Total	**5.0000e-004**	**3.6000e-004**	**3.5700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9364**	**0.9364**	**3.0000e-005**	**0.0000**	**0.9370**

3.5 Paving - 2023

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

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-004	3.6000e-004	3.5700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9364	0.9364	3.0000e-005	0.0000	0.9370
Total	**5.0000e-004**	**3.6000e-004**	**3.5700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9364**	**0.9364**	**3.0000e-005**	**0.0000**	**0.9370**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.6777**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	7.0000e-005	5.0000e-005	4.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1249	0.1249	0.0000	0.0000	0.1249
Total	**7.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1249**	**0.1249**	**0.0000**	**0.0000**	**0.1249**

3.6 Architectural Coating - 2023

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	0.6758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.6777**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	7.0000e-005	5.0000e-005	4.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1249	0.1249	0.0000	0.0000	0.1249
Total	**7.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1249**	**0.1249**	**0.0000**	**0.0000**	**0.1249**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0728	0.6034	0.7900	3.7500e-003	0.2463	2.0000e-003	0.2483	0.0661	1.8700e-003	0.0679	0.0000	348.4585	348.4585	0.0217	0.0000	349.0010
Unmitigated	0.0728	0.6034	0.7900	3.7500e-003	0.2463	2.0000e-003	0.2483	0.0661	1.8700e-003	0.0679	0.0000	348.4585	348.4585	0.0217	0.0000	349.0010

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	228.48	237.84	206.88	643,944	643,944
Total	228.48	237.84	206.88	643,944	643,944

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.545862	0.034394	0.171599	0.103299	0.016338	0.005100	0.010433	0.099439	0.001620	0.001949	0.008107	0.000868	0.000992

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	61.7592	61.7592	2.5500e-003	5.3000e-004	61.9801
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	66.6542	66.6542	2.7500e-003	5.7000e-004	66.8926
NaturalGas Mitigated	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	31.3198	31.3198	6.0000e-004	5.7000e-004	31.5059
NaturalGas Unmitigated	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.1855	39.1855	7.5000e-004	7.2000e-004	39.4183

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	734308	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.1855	39.1855	7.5000e-004	7.2000e-004	39.4183
Total		**3.9600e-003**	**0.0338**	**0.0144**	**2.2000e-004**		**2.7400e-003**	**2.7400e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**39.1855**	**39.1855**	**7.5000e-004**	**7.2000e-004**	**39.4183**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	586911	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	31.3198	31.3198	6.0000e-004	5.7000e-004	31.5059
Total		**3.1600e-003**	**0.0270**	**0.0115**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**	**0.0000**	**31.3198**	**31.3198**	**6.0000e-004**	**5.7000e-004**	**31.5059**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	209196	66.6542	2.7500e-003	5.7000e-004	66.8926
Total		**66.6542**	**2.7500e-003**	**5.7000e-004**	**66.8926**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	193832	61.7592	2.5500e-003	5.3000e-004	61.9801
Total		**61.7592**	**2.5500e-003**	**5.3000e-004**	**61.9801**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7476	0.0315	2.0371	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6391
Unmitigated	1.7476	0.0315	2.0371	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6391

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	0.0676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5059	0.0294	1.8589	3.3700e-003		0.2606	0.2606		0.2606	0.2606	24.7910	10.3970	35.1880	0.0229	1.9500e-003	36.3410
Landscaping	5.3700e-003	2.0500e-003	0.1782	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2911	0.2911	2.8000e-004	0.0000	0.2981
Total	**1.7476**	**0.0315**	**2.0371**	**3.3800e-003**		**0.2616**	**0.2616**		**0.2616**	**0.2616**	**24.7910**	**10.6881**	**35.4791**	**0.0232**	**1.9500e-003**	**36.6391**

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	0.0676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5059	0.0294	1.8589	3.3700e-003		0.2606	0.2606		0.2606	0.2606	24.7910	10.3970	35.1880	0.0229	1.9500e-003	36.3410
Landscaping	5.3700e-003	2.0500e-003	0.1782	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2911	0.2911	2.8000e-004	0.0000	0.2981
Total	**1.7476**	**0.0315**	**2.0371**	**3.3800e-003**		**0.2616**	**0.2616**		**0.2616**	**0.2616**	**24.7910**	**10.6881**	**35.4791**	**0.0232**	**1.9500e-003**	**36.6391**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.4732	0.0514	1.2900e-003	12.1412
Unmitigated	10.4732	0.0514	1.2900e-003	12.1412

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Total		**10.4732**	**0.0514**	**1.2900e-003**	**12.1412**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Total		**10.4732**	**0.0514**	**1.2900e-003**	**12.1412**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.7426	0.3394	0.0000	14.2271
Unmitigated	5.7426	0.3394	0.0000	14.2271

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	28.29	5.7426	0.3394	0.0000	14.2271
Total		**5.7426**	**0.3394**	**0.0000**	**14.2271**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	28.29	5.7426	0.3394	0.0000	14.2271
Total		**5.7426**	**0.3394**	**0.0000**	**14.2271**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 4

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	23.00	Dwelling Unit	5.60	41,400.00	66

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 4-23 units/5.6 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	199.00
tblConstructionPhase	PhaseEndDate	6/10/2024	3/1/2024
tblConstructionPhase	PhaseEndDate	4/15/2024	3/2/2024
tblConstructionPhase	PhaseEndDate	5/13/2024	2/28/2024
tblConstructionPhase	PhaseStartDate	5/14/2024	2/5/2024
tblConstructionPhase	PhaseStartDate	4/16/2024	2/1/2024
tblLandUse	LotAcreage	7.47	5.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1547	1.4378	1.5126	2.6700e-003	0.1638	0.0680	0.2318	0.0855	0.0637	0.1492	0.0000	230.8390	230.8390	0.0567	0.0000	232.2567
2024	0.6936	0.4139	0.5365	9.0000e-004	3.1200e-003	0.0191	0.0222	8.4000e-004	0.0179	0.0188	0.0000	78.0672	78.0672	0.0191	0.0000	78.5443
Maximum	**0.6936**	**1.4378**	**1.5126**	**2.6700e-003**	**0.1638**	**0.0680**	**0.2318**	**0.0855**	**0.0637**	**0.1492**	**0.0000**	**230.8390**	**230.8390**	**0.0567**	**0.0000**	**232.2567**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1547	1.4378	1.5126	2.6700e-003	0.1638	0.0680	0.2318	0.0855	0.0637	0.1492	0.0000	230.8387	230.8387	0.0567	0.0000	232.2564
2024	0.6936	0.4139	0.5365	9.0000e-004	3.1200e-003	0.0191	0.0222	8.4000e-004	0.0179	0.0188	0.0000	78.0671	78.0671	0.0191	0.0000	78.5443
Maximum	**0.6936**	**1.4378**	**1.5126**	**2.6700e-003**	**0.1638**	**0.0680**	**0.2318**	**0.0855**	**0.0637**	**0.1492**	**0.0000**	**230.8387**	**230.8387**	**0.0567**	**0.0000**	**232.2564**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

The Address at Tehachapi Subdivision - Phase 4 - Mojave Desert Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-18-2023	7-17-2023	0.6316	0.6316
2	7-18-2023	10-17-2023	0.5308	0.5308
3	10-18-2023	1-17-2024	0.5243	0.5243
4	1-18-2024	4-17-2024	0.9632	0.9632
		Highest	0.9632	0.9632

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6748	0.0302	1.9521	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125
Energy	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	101.4296	101.4296	3.3600e-003	1.2300e-003	101.8813
Mobile	0.0657	0.5627	0.7032	3.5000e-003	0.2360	1.8500e-003	0.2379	0.0633	1.7300e-003	0.0650	0.0000	325.7895	325.7895	0.0202	0.0000	326.2933
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**1.7442**	**0.6253**	**2.6692**	**6.9500e-003**	**0.2360**	**0.2552**	**0.4912**	**0.0633**	**0.2551**	**0.3184**	**29.7264**	**447.0232**	**476.7496**	**0.4195**	**4.3300e-003**	**488.5309**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6748	0.0302	1.9521	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125
Energy	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	89.2007	89.2007	3.0200e-003	1.0600e-003	89.5908
Mobile	0.0657	0.5627	0.7032	3.5000e-003	0.2360	1.8500e-003	0.2379	0.0633	1.7300e-003	0.0650	0.0000	325.7895	325.7895	0.0202	0.0000	326.2933
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**1.7434**	**0.6188**	**2.6664**	**6.9100e-003**	**0.2360**	**0.2547**	**0.4907**	**0.0633**	**0.2546**	**0.3178**	**29.7264**	**434.7943**	**464.5207**	**0.4192**	**4.1600e-003**	**476.2404**

	ROG	NOx	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	**0.04**	**1.04**	**0.10**	**0.58**	**0.00**	**0.20**	**0.11**	**0.00**	**0.20**	**0.16**	**0.00**	**2.74**	**2.57**	**0.08**	**3.93**	**2.52**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 4 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/18/2023	5/1/2023	5	10	
2	Grading	Grading	5/2/2023	5/29/2023	5	20	
3	Building Construction	Building Construction	5/30/2023	3/2/2024	5	199	
4	Paving	Paving	2/1/2024	2/28/2024	5	20	
5	Architectural Coating	Architectural Coating	2/5/2024	3/1/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 83,835; Residential Outdoor: 27,945; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

The Address at Tehachapi Subdivision - Phase 4 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0903**	**6.3300e-003**	**0.0967**	**0.0497**	**5.8200e-003**	**0.0555**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.2000e-004	2.1400e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5618	0.5618	2.0000e-005	0.0000	0.5622
Total	**3.0000e-004**	**2.2000e-004**	**2.1400e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5618**	**0.5618**	**2.0000e-005**	**0.0000**	**0.5622**

3.2 Site Preparation - 2023

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0903**	**6.3300e-003**	**0.0967**	**0.0497**	**5.8200e-003**	**0.0555**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.2000e-004	2.1400e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5618	0.5618	2.0000e-005	0.0000	0.5622
Total	**3.0000e-004**	**2.2000e-004**	**2.1400e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5618**	**0.5618**	**2.0000e-005**	**0.0000**	**0.5622**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0655**	**7.7500e-003**	**0.0733**	**0.0337**	**7.1300e-003**	**0.0408**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

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-004	3.6000e-004	3.5700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9364	0.9364	3.0000e-005	0.0000	0.9370
Total	**5.0000e-004**	**3.6000e-004**	**3.5700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9364**	**0.9364**	**3.0000e-005**	**0.0000**	**0.9370**

3.3 Grading - 2023

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0655**	**7.7500e-003**	**0.0733**	**0.0337**	**7.1300e-003**	**0.0408**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

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-004	3.6000e-004	3.5700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9364	0.9364	3.0000e-005	0.0000	0.9370
Total	**5.0000e-004**	**3.6000e-004**	**3.5700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9364**	**0.9364**	**3.0000e-005**	**0.0000**	**0.9370**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1211	1.1076	1.2508	2.0700e-003		0.0539	0.0539		0.0507	0.0507	0.0000	178.4897	178.4897	0.0425	0.0000	179.5512
Total	**0.1211**	**1.1076**	**1.2508**	**2.0700e-003**		**0.0539**	**0.0539**		**0.0507**	**0.0507**	**0.0000**	**178.4897**	**178.4897**	**0.0425**	**0.0000**	**179.5512**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	0.0112	2.6600e-003	4.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	4.2197	4.2197	2.7000e-004	0.0000	4.2264
Worker	2.0700e-003	1.5000e-003	0.0147	4.0000e-005	4.9700e-003	3.0000e-005	5.0000e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.8454	3.8454	1.0000e-004	0.0000	3.8480
Total	**2.4100e-003**	**0.0127**	**0.0173**	**8.0000e-005**	**6.0000e-003**	**4.0000e-005**	**6.0400e-003**	**1.6200e-003**	**4.0000e-005**	**1.6600e-003**	**0.0000**	**8.0651**	**8.0651**	**3.7000e-004**	**0.0000**	**8.0744**

3.4 Building Construction - 2023

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	0.1211	1.1076	1.2508	2.0700e-003		0.0539	0.0539		0.0507	0.0507	0.0000	178.4894	178.4894	0.0425	0.0000	179.5509
Total	**0.1211**	**1.1076**	**1.2508**	**2.0700e-003**		**0.0539**	**0.0539**		**0.0507**	**0.0507**	**0.0000**	**178.4894**	**178.4894**	**0.0425**	**0.0000**	**179.5509**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	0.0112	2.6600e-003	4.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	4.2197	4.2197	2.7000e-004	0.0000	4.2264
Worker	2.0700e-003	1.5000e-003	0.0147	4.0000e-005	4.9700e-003	3.0000e-005	5.0000e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.8454	3.8454	1.0000e-004	0.0000	3.8480
Total	**2.4100e-003**	**0.0127**	**0.0173**	**8.0000e-005**	**6.0000e-003**	**4.0000e-005**	**6.0400e-003**	**1.6200e-003**	**4.0000e-005**	**1.6600e-003**	**0.0000**	**8.0651**	**8.0651**	**3.7000e-004**	**0.0000**	**8.0744**

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	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1661	52.1661	0.0123	0.0000	52.4744
Total	**0.0331**	**0.3025**	**0.3638**	**6.1000e-004**		**0.0138**	**0.0138**		**0.0130**	**0.0130**	**0.0000**	**52.1661**	**52.1661**	**0.0123**	**0.0000**	**52.4744**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.2300e-003	7.3000e-004	1.0000e-005	3.0000e-004	0.0000	3.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	1.2238	1.2238	8.0000e-005	0.0000	1.2258
Worker	5.7000e-004	3.9000e-004	3.9300e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.0787	1.0787	3.0000e-005	0.0000	1.0794
Total	**6.7000e-004**	**3.6200e-003**	**4.6600e-003**	**2.0000e-005**	**1.7500e-003**	**1.0000e-005**	**1.7600e-003**	**4.8000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**2.3026**	**2.3026**	**1.1000e-004**	**0.0000**	**2.3052**

3.4 Building Construction - 2024

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	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1660	52.1660	0.0123	0.0000	52.4744
Total	**0.0331**	**0.3025**	**0.3638**	**6.1000e-004**		**0.0138**	**0.0138**		**0.0130**	**0.0130**	**0.0000**	**52.1660**	**52.1660**	**0.0123**	**0.0000**	**52.4744**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.2300e-003	7.3000e-004	1.0000e-005	3.0000e-004	0.0000	3.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	1.2238	1.2238	8.0000e-005	0.0000	1.2258
Worker	5.7000e-004	3.9000e-004	3.9300e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.0787	1.0787	3.0000e-005	0.0000	1.0794
Total	**6.7000e-004**	**3.6200e-003**	**4.6600e-003**	**2.0000e-005**	**1.7500e-003**	**1.0000e-005**	**1.7600e-003**	**4.8000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**2.3026**	**2.3026**	**1.1000e-004**	**0.0000**	**2.3052**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

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	3.3000e-004	3.2700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.8989	0.8989	2.0000e-005	0.0000	0.8995
Total	**4.7000e-004**	**3.3000e-004**	**3.2700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.8989**	**0.8989**	**2.0000e-005**	**0.0000**	**0.8995**

3.5 Paving - 2024

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	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

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	3.3000e-004	3.2700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.8989	0.8989	2.0000e-005	0.0000	0.8995
Total	**4.7000e-004**	**3.3000e-004**	**3.2700e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.8989**	**0.8989**	**2.0000e-005**	**0.0000**	**0.8995**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.6494**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1199	0.1199	0.0000	0.0000	0.1199
Total	**6.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1199**	**0.1199**	**0.0000**	**0.0000**	**0.1199**

3.6 Architectural Coating - 2024

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	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.6494**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1199	0.1199	0.0000	0.0000	0.1199
Total	**6.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1199**	**0.1199**	**0.0000**	**0.0000**	**0.1199**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0657	0.5627	0.7032	3.5000e-003	0.2360	1.8500e-003	0.2379	0.0633	1.7300e-003	0.0650	0.0000	325.7895	325.7895	0.0202	0.0000	326.2933
Unmitigated	0.0657	0.5627	0.7032	3.5000e-003	0.2360	1.8500e-003	0.2379	0.0633	1.7300e-003	0.0650	0.0000	325.7895	325.7895	0.0202	0.0000	326.2933

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	218.96	227.93	198.26	617,113	617,113
Total	218.96	227.93	198.26	617,113	617,113

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.549439	0.033908	0.172087	0.101020	0.015282	0.004921	0.010465	0.099619	0.001620	0.001907	0.007947	0.000863	0.000923

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	59.1859	59.1859	2.4400e-003	5.1000e-004	59.3976
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	63.8769	63.8769	2.6400e-003	5.5000e-004	64.1054
NaturalGas Mitigated	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
NaturalGas Unmitigated	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	703711	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759
Total		**3.7900e-003**	**0.0324**	**0.0138**	**2.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.6200e-003**	**2.6200e-003**	**0.0000**	**37.5527**	**37.5527**	**7.2000e-004**	**6.9000e-004**	**37.7759**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	562456	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
Total		**3.0300e-003**	**0.0259**	**0.0110**	**1.7000e-004**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**30.0148**	**30.0148**	**5.8000e-004**	**5.5000e-004**	**30.1932**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	200479	63.8769	2.6400e-003	5.5000e-004	64.1054
Total		**63.8769**	**2.6400e-003**	**5.5000e-004**	**64.1054**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	185756	59.1859	2.4400e-003	5.1000e-004	59.3976
Total		**59.1859**	**2.4400e-003**	**5.1000e-004**	**59.3976**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6748	0.0302	1.9521	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125
Unmitigated	1.6748	0.0302	1.9521	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1125

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4432	0.0282	1.7814	3.2300e-003		0.2498	0.2498		0.2498	0.2498	23.7580	9.9638	33.7218	0.0219	1.8700e-003	34.8268
Landscaping	5.1300e-003	1.9700e-003	0.1707	1.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2857
Total	**1.6747**	**0.0302**	**1.9521**	**3.2400e-003**		**0.2507**	**0.2507**		**0.2507**	**0.2507**	**23.7580**	**10.2427**	**34.0008**	**0.0222**	**1.8700e-003**	**35.1125**

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4432	0.0282	1.7814	3.2300e-003		0.2498	0.2498		0.2498	0.2498	23.7580	9.9638	33.7218	0.0219	1.8700e-003	34.8268
Landscaping	5.1300e-003	1.9700e-003	0.1707	1.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2857
Total	**1.6747**	**0.0302**	**1.9521**	**3.2400e-003**		**0.2507**	**0.2507**		**0.2507**	**0.2507**	**23.7580**	**10.2427**	**34.0008**	**0.0222**	**1.8700e-003**	**35.1125**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.0368	0.0492	1.2300e-003	11.6353
Unmitigated	10.0368	0.0492	1.2300e-003	11.6353

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.4929	0.3246	0.0000	13.6085
Unmitigated	5.4929	0.3246	0.0000	13.6085

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 5

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	19.00	Dwelling Unit	4.60	34,200.00	54

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 5-19 units/4.6 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	176.00
tblConstructionPhase	PhaseEndDate	3/27/2025	11/20/2024
tblConstructionPhase	PhaseEndDate	2/5/2025	11/21/2024
tblConstructionPhase	PhaseEndDate	3/3/2025	11/6/2024
tblConstructionPhase	PhaseStartDate	3/4/2025	10/28/2024
tblConstructionPhase	PhaseStartDate	2/6/2025	10/14/2024
tblLandUse	LotAcreage	6.17	4.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.6906	1.4192	1.6765	2.8900e-003	0.0799	0.0641	0.1440	0.0406	0.0602	0.1008	0.0000	250.0974	250.0974	0.0595	0.0000	251.5854
Maximum	**0.6906**	**1.4192**	**1.6765**	**2.8900e-003**	**0.0799**	**0.0641**	**0.1440**	**0.0406**	**0.0602**	**0.1008**	**0.0000**	**250.0974**	**250.0974**	**0.0595**	**0.0000**	**251.5854**

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	0.6906	1.4192	1.6765	2.8900e-003	0.0799	0.0641	0.1440	0.0406	0.0602	0.1008	0.0000	250.0971	250.0971	0.0595	0.0000	251.5852
Maximum	**0.6906**	**1.4192**	**1.6765**	**2.8900e-003**	**0.0799**	**0.0641**	**0.1440**	**0.0406**	**0.0602**	**0.1008**	**0.0000**	**250.0971**	**250.0971**	**0.0595**	**0.0000**	**251.5852**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-3-2024**	**6-2-2024**	0.5437	0.5437
2	**6-3-2024**	**9-2-2024**	0.4962	0.4962
3	**9-3-2024**	**9-30-2024**	0.1510	0.1510
		Highest	0.5437	0.5437

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3835	0.0249	1.6126	2.6700e-003		0.2071	0.2071		0.2071	0.2071	19.6262	8.4614	28.0876	0.0183	1.5400e-003	29.0059
Energy	3.1300e-003	0.0268	0.0114	1.7000e-004		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	83.7897	83.7897	2.7700e-003	1.0200e-003	84.1628
Mobile	0.0542	0.4649	0.5809	2.8900e-003	0.1950	1.5300e-003	0.1965	0.0523	1.4300e-003	0.0537	0.0000	269.1305	269.1305	0.0167	0.0000	269.5466
Waste						0.0000	0.0000		0.0000	0.0000	4.4942	0.0000	4.4942	0.2656	0.0000	11.1342
Water						0.0000	0.0000		0.0000	0.0000	0.3927	7.8985	8.2913	0.0407	1.0200e-003	9.6118
Total	**1.4409**	**0.5166**	**2.2050**	**5.7300e-003**	**0.1950**	**0.2108**	**0.4058**	**0.0523**	**0.2107**	**0.2630**	**24.5132**	**369.2801**	**393.7932**	**0.3440**	**3.5800e-003**	**403.4614**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3835	0.0249	1.6126	2.6700e-003		0.2071	0.2071		0.2071	0.2071	19.6262	8.4614	28.0876	0.0183	1.5400e-003	29.0059
Energy	2.5100e-003	0.0214	9.1100e-003	1.4000e-004		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	73.6875	73.6875	2.4900e-003	8.7000e-004	74.0098
Mobile	0.0542	0.4649	0.5809	2.8900e-003	0.1950	1.5300e-003	0.1965	0.0523	1.4300e-003	0.0537	0.0000	269.1305	269.1305	0.0167	0.0000	269.5466
Waste						0.0000	0.0000		0.0000	0.0000	4.4942	0.0000	4.4942	0.2656	0.0000	11.1342
Water						0.0000	0.0000		0.0000	0.0000	0.3927	7.8985	8.2913	0.0407	1.0200e-003	9.6118
Total	**1.4402**	**0.5112**	**2.2027**	**5.7000e-003**	**0.1950**	**0.2104**	**0.4054**	**0.0523**	**0.2103**	**0.2626**	**24.5132**	**359.1779**	**383.6910**	**0.3437**	**3.4300e-003**	**393.3084**

	ROG	NOx	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	**0.04**	**1.04**	**0.10**	**0.52**	**0.00**	**0.21**	**0.11**	**0.00**	**0.21**	**0.17**	**0.00**	**2.74**	**2.57**	**0.08**	**4.19**	**2.52**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 5 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/3/2024	3/8/2024	5	5	
2	Grading	Grading	3/9/2024	3/20/2024	5	8	
3	Building Construction	Building Construction	3/21/2024	11/21/2024	5	176	
4	Paving	Paving	10/14/2024	11/6/2024	5	18	
5	Architectural Coating	Architectural Coating	10/28/2024	11/20/2024	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 69,255; Residential Outdoor: 23,085; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Address at Tehachapi Subdivision - Phase 5 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	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**	**0.0452**	**3.0700e-003**	**0.0482**	**0.0248**	**2.8300e-003**	**0.0277**	**0.0000**	**8.3643**	**8.3643**	**2.7100e-003**	**0.0000**	**8.4319**

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	1.4000e-004	1.0000e-004	9.8000e-004	0.0000	3.6000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2697	0.2697	1.0000e-005	0.0000	0.2699
Total	**1.4000e-004**	**1.0000e-004**	**9.8000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2697**	**0.2697**	**1.0000e-005**	**0.0000**	**0.2699**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	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**	**0.0452**	**3.0700e-003**	**0.0482**	**0.0248**	**2.8300e-003**	**0.0277**	**0.0000**	**8.3643**	**8.3643**	**2.7100e-003**	**0.0000**	**8.4319**

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	1.4000e-004	1.0000e-004	9.8000e-004	0.0000	3.6000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2697	0.2697	1.0000e-005	0.0000	0.2699
Total	**1.4000e-004**	**1.0000e-004**	**9.8000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2697**	**0.2697**	**1.0000e-005**	**0.0000**	**0.2699**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	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**	**0.0262**	**2.9000e-003**	**0.0291**	**0.0135**	**2.6700e-003**	**0.0161**	**0.0000**	**10.4256**	**10.4256**	**3.3700e-003**	**0.0000**	**10.5099**

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	1.9000e-004	1.3000e-004	1.3100e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3596	0.3596	1.0000e-005	0.0000	0.3598
Total	**1.9000e-004**	**1.3000e-004**	**1.3100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3596**	**0.3596**	**1.0000e-005**	**0.0000**	**0.3598**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	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**	**0.0262**	**2.9000e-003**	**0.0291**	**0.0135**	**2.6700e-003**	**0.0161**	**0.0000**	**10.4256**	**10.4256**	**3.3700e-003**	**0.0000**	**10.5099**

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	1.9000e-004	1.3000e-004	1.3100e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3596	0.3596	1.0000e-005	0.0000	0.3598
Total	**1.9000e-004**	**1.3000e-004**	**1.3100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3596**	**0.3596**	**1.0000e-005**	**0.0000**	**0.3598**

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	0.1295	1.1831	1.4227	2.3700e-003		0.0540	0.0540		0.0508	0.0508	0.0000	204.0272	204.0272	0.0483	0.0000	205.2334
Total	**0.1295**	**1.1831**	**1.4227**	**2.3700e-003**		**0.0540**	**0.0540**		**0.0508**	**0.0508**	**0.0000**	**204.0272**	**204.0272**	**0.0483**	**0.0000**	**205.2334**

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8000e-004	0.0126	2.8400e-003	5.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	4.7866	4.7866	3.0000e-004	0.0000	4.7941
Worker	1.9400e-003	1.3500e-003	0.0134	4.0000e-005	4.9700e-003	3.0000e-005	5.0000e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.6916	3.6916	9.0000e-005	0.0000	3.6940
Total	**2.3200e-003**	**0.0140**	**0.0163**	**9.0000e-005**	**6.1500e-003**	**4.0000e-005**	**6.1900e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**8.4782**	**8.4782**	**3.9000e-004**	**0.0000**	**8.4880**

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	0.1295	1.1831	1.4227	2.3700e-003		0.0540	0.0540		0.0508	0.0508	0.0000	204.0270	204.0270	0.0483	0.0000	205.2331
Total	**0.1295**	**1.1831**	**1.4227**	**2.3700e-003**		**0.0540**	**0.0540**		**0.0508**	**0.0508**	**0.0000**	**204.0270**	**204.0270**	**0.0483**	**0.0000**	**205.2331**

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8000e-004	0.0126	2.8400e-003	5.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	4.7866	4.7866	3.0000e-004	0.0000	4.7941
Worker	1.9400e-003	1.3500e-003	0.0134	4.0000e-005	4.9700e-003	3.0000e-005	5.0000e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.6916	3.6916	9.0000e-005	0.0000	3.6940
Total	**2.3200e-003**	**0.0140**	**0.0163**	**9.0000e-005**	**6.1500e-003**	**4.0000e-005**	**6.1900e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**8.4782**	**8.4782**	**3.9000e-004**	**0.0000**	**8.4880**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.9000e-004	3.9300e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.0787	1.0787	3.0000e-005	0.0000	1.0794
Total	**5.7000e-004**	**3.9000e-004**	**3.9300e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0787**	**1.0787**	**3.0000e-005**	**0.0000**	**1.0794**

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	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.9000e-004	3.9300e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.0787	1.0787	3.0000e-005	0.0000	1.0794
Total	**5.7000e-004**	**3.9000e-004**	**3.9300e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0787**	**1.0787**	**3.0000e-005**	**0.0000**	**1.0794**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5350					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**0.5366**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0539	0.0539	0.0000	0.0000	0.0540
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0539**	**0.0539**	**0.0000**	**0.0000**	**0.0540**

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	0.5350					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**0.5366**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0539	0.0539	0.0000	0.0000	0.0540
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0539**	**0.0539**	**0.0000**	**0.0000**	**0.0540**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0542	0.4649	0.5809	2.8900e-003	0.1950	1.5300e-003	0.1965	0.0523	1.4300e-003	0.0537	0.0000	269.1305	269.1305	0.0167	0.0000	269.5466
Unmitigated	0.0542	0.4649	0.5809	2.8900e-003	0.1950	1.5300e-003	0.1965	0.0523	1.4300e-003	0.0537	0.0000	269.1305	269.1305	0.0167	0.0000	269.5466

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	180.88	188.29	163.78	509,789	509,789
Total	180.88	188.29	163.78	509,789	509,789

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.549439	0.033908	0.172087	0.101020	0.015282	0.004921	0.010465	0.099619	0.001620	0.001907	0.007947	0.000863	0.000923

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	48.8927	48.8927	2.0200e-003	4.2000e-004	49.0676
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52.7679	52.7679	2.1800e-003	4.5000e-004	52.9567
NaturalGas Mitigated	2.5100e-003	0.0214	9.1100e-003	1.4000e-004		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	24.7948	24.7948	4.8000e-004	4.5000e-004	24.9422
NaturalGas Unmitigated	3.1300e-003	0.0268	0.0114	1.7000e-004		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	31.0218	31.0218	5.9000e-004	5.7000e-004	31.2062

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	581327	3.1300e-003	0.0268	0.0114	1.7000e-004		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	31.0218	31.0218	5.9000e-004	5.7000e-004	31.2062
Total		**3.1300e-003**	**0.0268**	**0.0114**	**1.7000e-004**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**31.0218**	**31.0218**	**5.9000e-004**	**5.7000e-004**	**31.2062**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	464638	2.5100e-003	0.0214	9.1100e-003	1.4000e-004		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	24.7948	24.7948	4.8000e-004	4.5000e-004	24.9422
Total		**2.5100e-003**	**0.0214**	**9.1100e-003**	**1.4000e-004**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**24.7948**	**24.7948**	**4.8000e-004**	**4.5000e-004**	**24.9422**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	165613	52.7679	2.1800e-003	4.5000e-004	52.9567
Total		**52.7679**	**2.1800e-003**	**4.5000e-004**	**52.9567**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	153451	48.8927	2.0200e-003	4.2000e-004	49.0676
Total		**48.8927**	**2.0200e-003**	**4.2000e-004**	**49.0676**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3835	0.0249	1.6126	2.6700e-003		0.2071	0.2071		0.2071	0.2071	19.6262	8.4614	28.0876	0.0183	1.5400e-003	29.0059
Unmitigated	1.3835	0.0249	1.6126	2.6700e-003		0.2071	0.2071		0.2071	0.2071	19.6262	8.4614	28.0876	0.0183	1.5400e-003	29.0059

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	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1922	0.0233	1.4716	2.6700e-003		0.2063	0.2063		0.2063	0.2063	19.6262	8.2309	27.8571	0.0181	1.5400e-003	28.7700
Landscaping	4.2400e-003	1.6200e-003	0.1410	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.2000e-004	0.0000	0.2360
Total	**1.3835**	**0.0249**	**1.6126**	**2.6800e-003**		**0.2071**	**0.2071**		**0.2071**	**0.2071**	**19.6262**	**8.4614**	**28.0876**	**0.0183**	**1.5400e-003**	**29.0059**

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	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1922	0.0233	1.4716	2.6700e-003		0.2063	0.2063		0.2063	0.2063	19.6262	8.2309	27.8571	0.0181	1.5400e-003	28.7700
Landscaping	4.2400e-003	1.6200e-003	0.1410	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.2000e-004	0.0000	0.2360
Total	**1.3835**	**0.0249**	**1.6126**	**2.6800e-003**		**0.2071**	**0.2071**		**0.2071**	**0.2071**	**19.6262**	**8.4614**	**28.0876**	**0.0183**	**1.5400e-003**	**29.0059**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.2913	0.0407	1.0200e-003	9.6118
Unmitigated	8.2913	0.0407	1.0200e-003	9.6118

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	8.2913	0.0407	1.0200e-003	9.6118
Total		**8.2913**	**0.0407**	**1.0200e-003**	**9.6118**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	8.2913	0.0407	1.0200e-003	9.6118
Total		**8.2913**	**0.0407**	**1.0200e-003**	**9.6118**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.4942	0.2656	0.0000	11.1342
Unmitigated	4.4942	0.2656	0.0000	11.1342

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.14	4.4942	0.2656	0.0000	11.1342
Total		**4.4942**	**0.2656**	**0.0000**	**11.1342**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.14	4.4942	0.2656	0.0000	11.1342
Total		**4.4942**	**0.2656**	**0.0000**	**11.1342**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 6

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	18.00	Dwelling Unit	4.40	32,400.00	51

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2026
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 6-18 units/4.4 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	165.00
tblConstructionPhase	PhaseEndDate	12/17/2026	7/22/2026
tblConstructionPhase	PhaseEndDate	10/28/2026	7/29/2026
tblConstructionPhase	PhaseEndDate	11/23/2026	7/8/2026
tblConstructionPhase	PhaseStartDate	11/24/2026	6/29/2026
tblConstructionPhase	PhaseStartDate	10/29/2026	6/15/2026
tblLandUse	LotAcreage	5.84	4.40

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0230	0.2192	0.2268	4.3000e-004	0.0727	9.1800e-003	0.0819	0.0387	8.5200e-003	0.0472	0.0000	37.4572	37.4572	0.0102	0.0000	37.7125
2026	0.6204	1.0250	1.3463	2.3000e-003	6.1500e-003	0.0432	0.0494	1.6600e-003	0.0407	0.0423	0.0000	198.5510	198.5510	0.0460	0.0000	199.7003
Maximum	**0.6204**	**1.0250**	**1.3463**	**2.3000e-003**	**0.0727**	**0.0432**	**0.0819**	**0.0387**	**0.0407**	**0.0472**	**0.0000**	**198.5510**	**198.5510**	**0.0460**	**0.0000**	**199.7003**

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	0.0230	0.2192	0.2268	4.3000e-004	0.0727	9.1800e-003	0.0819	0.0387	8.5200e-003	0.0472	0.0000	37.4571	37.4571	0.0102	0.0000	37.7125
2026	0.6204	1.0250	1.3463	2.3000e-003	6.1500e-003	0.0432	0.0494	1.6600e-003	0.0407	0.0423	0.0000	198.5508	198.5508	0.0460	0.0000	199.7000
Maximum	**0.6204**	**1.0250**	**1.3463**	**2.3000e-003**	**0.0727**	**0.0432**	**0.0819**	**0.0387**	**0.0407**	**0.0472**	**0.0000**	**198.5508**	**198.5508**	**0.0460**	**0.0000**	**199.7000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-22-2025**	**2-21-2026**	0.5072	0.5072
2	**2-22-2026**	**5-21-2026**	0.4453	0.4453
3	**5-22-2026**	**8-21-2026**	0.9117	0.9117
		Highest	0.9117	0.9117

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3107	0.0236	1.5277	2.5300e-003		0.1962	0.1962		0.1962	0.1962	18.5932	8.0161	26.6093	0.0174	1.4600e-003	27.4793
Energy	2.9700e-003	0.0254	0.0108	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	79.3797	79.3797	2.6300e-003	9.7000e-004	79.7332
Mobile	0.0463	0.4207	0.4853	2.6200e-003	0.1847	1.3500e-003	0.1860	0.0495	1.2600e-003	0.0508	0.0000	243.8126	243.8126	0.0148	0.0000	244.1816
Waste						0.0000	0.0000		0.0000	0.0000	4.2445	0.0000	4.2445	0.2509	0.0000	10.5157
Water						0.0000	0.0000		0.0000	0.0000	0.3721	7.4828	7.8549	0.0385	9.7000e-004	9.1059
Total	**1.3599**	**0.4697**	**2.0238**	**5.3100e-003**	**0.1847**	**0.1996**	**0.3843**	**0.0495**	**0.1995**	**0.2490**	**23.2099**	**338.6912**	**361.9010**	**0.3241**	**3.4000e-003**	**371.0157**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3107	0.0236	1.5277	2.5300e-003		0.1962	0.1962		0.1962	0.1962	18.5932	8.0161	26.6093	0.0174	1.4600e-003	27.4793
Energy	2.3700e-003	0.0203	8.6300e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	69.8092	69.8092	2.3600e-003	8.3000e-004	70.1145
Mobile	0.0463	0.4207	0.4853	2.6200e-003	0.1847	1.3500e-003	0.1860	0.0495	1.2600e-003	0.0508	0.0000	243.8126	243.8126	0.0148	0.0000	244.1816
Waste						0.0000	0.0000		0.0000	0.0000	4.2445	0.0000	4.2445	0.2509	0.0000	10.5157
Water						0.0000	0.0000		0.0000	0.0000	0.3721	7.4828	7.8549	0.0385	9.7000e-004	9.1059
Total	**1.3593**	**0.4646**	**2.0216**	**5.2800e-003**	**0.1847**	**0.1992**	**0.3839**	**0.0495**	**0.1991**	**0.2486**	**23.2099**	**329.1207**	**352.3305**	**0.3239**	**3.2600e-003**	**361.3970**

	ROG	NOx	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	**0.04**	**1.09**	**0.11**	**0.56**	**0.00**	**0.21**	**0.11**	**0.00**	**0.21**	**0.16**	**0.00**	**2.83**	**2.64**	**0.08**	**4.12**	**2.59**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 6 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/22/2025	11/28/2025	5	5	
2	Grading	Grading	11/29/2025	12/10/2025	5	8	
3	Building Construction	Building Construction	12/11/2025	7/29/2026	5	165	
4	Paving	Paving	6/15/2026	7/8/2026	5	18	
5	Architectural Coating	Architectural Coating	6/29/2026	7/22/2026	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 65,610; Residential Outdoor: 21,870; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

The Address at Tehachapi Subdivision - Phase 6 - Mojave Desert Air Basin, Annual

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

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	6.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3668	8.3668	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3668**	**8.3668**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	9.0000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2590	0.2590	1.0000e-005	0.0000	0.2591
Total	**1.3000e-004**	**9.0000e-005**	**9.0000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2590**	**0.2590**	**1.0000e-005**	**0.0000**	**0.2591**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3667	8.3667	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3667**	**8.3667**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	9.0000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2590	0.2590	1.0000e-005	0.0000	0.2591
Total	**1.3000e-004**	**9.0000e-005**	**9.0000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2590**	**0.2590**	**1.0000e-005**	**0.0000**	**0.2591**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3453	0.3453	1.0000e-005	0.0000	0.3455
Total	**1.8000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3453**	**0.3453**	**1.0000e-005**	**0.0000**	**0.3455**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3453	0.3453	1.0000e-005	0.0000	0.3455
Total	**1.8000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3453**	**0.3453**	**1.0000e-005**	**0.0000**	**0.3455**

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	0.0103	0.0935	0.1206	2.0000e-004		3.9600e-003	3.9600e-003		3.7200e-003	3.7200e-003	0.0000	17.3940	17.3940	4.0900e-003	0.0000	17.4962
Total	**0.0103**	**0.0935**	**0.1206**	**2.0000e-004**		**3.9600e-003**	**3.9600e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**17.3940**	**17.3940**	**4.0900e-003**	**0.0000**	**17.4962**

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	3.0000e-005	1.0700e-003	2.3000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.4054	0.4054	3.0000e-005	0.0000	0.4060
Worker	1.3000e-004	9.0000e-005	9.0000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2590	0.2590	1.0000e-005	0.0000	0.2591
Total	**1.6000e-004**	**1.1600e-003**	**1.1300e-003**	**0.0000**	**4.6000e-004**	**0.0000**	**4.6000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.6643**	**0.6643**	**4.0000e-005**	**0.0000**	**0.6651**

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	0.0103	0.0935	0.1206	2.0000e-004		3.9600e-003	3.9600e-003		3.7200e-003	3.7200e-003	0.0000	17.3939	17.3939	4.0900e-003	0.0000	17.4962
Total	**0.0103**	**0.0935**	**0.1206**	**2.0000e-004**		**3.9600e-003**	**3.9600e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**17.3939**	**17.3939**	**4.0900e-003**	**0.0000**	**17.4962**

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	3.0000e-005	1.0700e-003	2.3000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.4054	0.4054	3.0000e-005	0.0000	0.4060
Worker	1.3000e-004	9.0000e-005	9.0000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2590	0.2590	1.0000e-005	0.0000	0.2591
Total	**1.6000e-004**	**1.1600e-003**	**1.1300e-003**	**0.0000**	**4.6000e-004**	**0.0000**	**4.6000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.6643**	**0.6643**	**4.0000e-005**	**0.0000**	**0.6651**

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	0.1026	0.9352	1.2064	2.0200e-003		0.0396	0.0396		0.0372	0.0372	0.0000	173.9396	173.9396	0.0409	0.0000	174.9618
Total	**0.1026**	**0.9352**	**1.2064**	**2.0200e-003**		**0.0396**	**0.0396**		**0.0372**	**0.0372**	**0.0000**	**173.9396**	**173.9396**	**0.0409**	**0.0000**	**174.9618**

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	3.0000e-004	0.0106	2.2100e-003	4.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	4.0294	4.0294	2.5000e-004	0.0000	4.0356
Worker	1.2600e-003	8.1000e-004	8.3700e-003	3.0000e-005	3.6300e-003	2.0000e-005	3.6500e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.4956	2.4956	6.0000e-005	0.0000	2.4969
Total	**1.5600e-003**	**0.0114**	**0.0106**	**7.0000e-005**	**4.6300e-003**	**3.0000e-005**	**4.6600e-003**	**1.2500e-003**	**3.0000e-005**	**1.2800e-003**	**0.0000**	**6.5250**	**6.5250**	**3.1000e-004**	**0.0000**	**6.5325**

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	0.1026	0.9352	1.2064	2.0200e-003		0.0396	0.0396		0.0372	0.0372	0.0000	173.9394	173.9394	0.0409	0.0000	174.9616
Total	**0.1026**	**0.9352**	**1.2064**	**2.0200e-003**		**0.0396**	**0.0396**		**0.0372**	**0.0372**	**0.0000**	**173.9394**	**173.9394**	**0.0409**	**0.0000**	**174.9616**

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	3.0000e-004	0.0106	2.2100e-003	4.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	4.0294	4.0294	2.5000e-004	0.0000	4.0356
Worker	1.2600e-003	8.1000e-004	8.3700e-003	3.0000e-005	3.6300e-003	2.0000e-005	3.6500e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.4956	2.4956	6.0000e-005	0.0000	2.4969
Total	**1.5600e-003**	**0.0114**	**0.0106**	**7.0000e-005**	**4.6300e-003**	**3.0000e-005**	**4.6600e-003**	**1.2500e-003**	**3.0000e-005**	**1.2800e-003**	**0.0000**	**6.5250**	**6.5250**	**3.1000e-004**	**0.0000**	**6.5325**

3.5 Paving - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.3500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9982	0.9982	2.0000e-005	0.0000	0.9988
Total	**5.0000e-004**	**3.3000e-004**	**3.3500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9982**	**0.9982**	**2.0000e-005**	**0.0000**	**0.9988**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.3500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9982	0.9982	2.0000e-005	0.0000	0.9988
Total	**5.0000e-004**	**3.3000e-004**	**3.3500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9982**	**0.9982**	**2.0000e-005**	**0.0000**	**0.9988**

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	0.5068					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	**0.5084**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.7000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0499	0.0499	0.0000	0.0000	0.0499
Total	**3.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0499**	**0.0499**	**0.0000**	**0.0000**	**0.0499**

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	0.5068					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	**0.5084**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.7000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0499	0.0499	0.0000	0.0000	0.0499
Total	**3.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0499**	**0.0499**	**0.0000**	**0.0000**	**0.0499**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0463	0.4207	0.4853	2.6200e-003	0.1847	1.3500e-003	0.1860	0.0495	1.2600e-003	0.0508	0.0000	243.8126	243.8126	0.0148	0.0000	244.1816
Unmitigated	0.0463	0.4207	0.4853	2.6200e-003	0.1847	1.3500e-003	0.1860	0.0495	1.2600e-003	0.0508	0.0000	243.8126	243.8126	0.0148	0.0000	244.1816

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	171.36	178.38	155.16	482,958	482,958
Total	171.36	178.38	155.16	482,958	482,958

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.554912	0.033145	0.172938	0.097405	0.013532	0.004629	0.010506	0.100129	0.001620	0.001831	0.007688	0.000854	0.000811

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	46.3194	46.3194	1.9100e-003	4.0000e-004	46.4851
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	49.9906	49.9906	2.0600e-003	4.3000e-004	50.1695
NaturalGas Mitigated	2.3700e-003	0.0203	8.6300e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.4898	23.4898	4.5000e-004	4.3000e-004	23.6294
NaturalGas Unmitigated	2.9700e-003	0.0254	0.0108	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3891	29.3891	5.6000e-004	5.4000e-004	29.5637

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	550731	2.9700e-003	0.0254	0.0108	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3891	29.3891	5.6000e-004	5.4000e-004	29.5637
Total		**2.9700e-003**	**0.0254**	**0.0108**	**1.6000e-004**		**2.0500e-003**	**2.0500e-003**		**2.0500e-003**	**2.0500e-003**	**0.0000**	**29.3891**	**29.3891**	**5.6000e-004**	**5.4000e-004**	**29.5637**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	440183	2.3700e-003	0.0203	8.6300e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.4898	23.4898	4.5000e-004	4.3000e-004	23.6294
Total		**2.3700e-003**	**0.0203**	**8.6300e-003**	**1.3000e-004**		**1.6400e-003**	**1.6400e-003**		**1.6400e-003**	**1.6400e-003**	**0.0000**	**23.4898**	**23.4898**	**4.5000e-004**	**4.3000e-004**	**23.6294**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	156897	49.9906	2.0600e-003	4.3000e-004	50.1695
Total		**49.9906**	**2.0600e-003**	**4.3000e-004**	**50.1695**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	145374	46.3194	1.9100e-003	4.0000e-004	46.4851
Total		**46.3194**	**1.9100e-003**	**4.0000e-004**	**46.4851**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3107	0.0236	1.5277	2.5300e-003		0.1962	0.1962		0.1962	0.1962	18.5932	8.0161	26.6093	0.0174	1.4600e-003	27.4793
Unmitigated	1.3107	0.0236	1.5277	2.5300e-003		0.1962	0.1962		0.1962	0.1962	18.5932	8.0161	26.6093	0.0174	1.4600e-003	27.4793

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	0.0507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1294	0.0221	1.3942	2.5300e-003		0.1955	0.1955		0.1955	0.1955	18.5932	7.7977	26.3910	0.0172	1.4600e-003	27.2558
Landscaping	4.0100e-003	1.5400e-003	0.1335	1.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004	0.0000	0.2183	0.2183	2.1000e-004	0.0000	0.2235
Total	**1.3107**	**0.0236**	**1.5277**	**2.5400e-003**		**0.1962**	**0.1962**		**0.1962**	**0.1962**	**18.5932**	**8.0161**	**26.6093**	**0.0174**	**1.4600e-003**	**27.4793**

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	0.0507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1294	0.0221	1.3942	2.5300e-003		0.1955	0.1955		0.1955	0.1955	18.5932	7.7977	26.3910	0.0172	1.4600e-003	27.2558
Landscaping	4.0100e-003	1.5400e-003	0.1335	1.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004	0.0000	0.2183	0.2183	2.1000e-004	0.0000	0.2235
Total	**1.3107**	**0.0236**	**1.5277**	**2.5400e-003**		**0.1962**	**0.1962**		**0.1962**	**0.1962**	**18.5932**	**8.0161**	**26.6093**	**0.0174**	**1.4600e-003**	**27.4793**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.8549	0.0385	9.7000e-004	9.1059
Unmitigated	7.8549	0.0385	9.7000e-004	9.1059

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.17277 / 0.739357	7.8549	0.0385	9.7000e-004	9.1059
Total		**7.8549**	**0.0385**	**9.7000e-004**	**9.1059**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.17277 / 0.739357	7.8549	0.0385	9.7000e-004	9.1059
Total		**7.8549**	**0.0385**	**9.7000e-004**	**9.1059**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.2445	0.2509	0.0000	10.5157
Unmitigated	4.2445	0.2509	0.0000	10.5157

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.91	4.2445	0.2509	0.0000	10.5157
Total		**4.2445**	**0.2509**	**0.0000**	**10.5157**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.91	4.2445	0.2509	0.0000	10.5157
Total		**4.2445**	**0.2509**	**0.0000**	**10.5157**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 7

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	20.00	Dwelling Unit	4.80	36,000.00	57

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2027
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 7-20 units/4.80acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	185.00
tblConstructionPhase	PhaseEndDate	8/24/2027	4/28/2027
tblConstructionPhase	PhaseEndDate	7/5/2027	5/3/2027
tblConstructionPhase	PhaseEndDate	7/29/2027	4/26/2027
tblConstructionPhase	PhaseStartDate	7/30/2027	4/5/2027
tblConstructionPhase	PhaseStartDate	7/6/2027	4/1/2027
tblLandUse	LotAcreage	6.49	4.80

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.0807	0.7431	0.9009	1.5900e-003	0.0756	0.0311	0.1067	0.0395	0.0291	0.0686	0.0000	137.5522	137.5522	0.0330	0.0000	138.3774
2027	0.6330	0.6274	0.8353	1.4200e-003	4.5600e-003	0.0266	0.0312	1.2200e-003	0.0250	0.0262	0.0000	122.8941	122.8941	0.0287	0.0000	123.6108
Maximum	**0.6330**	**0.7431**	**0.9009**	**1.5900e-003**	**0.0756**	**0.0311**	**0.1067**	**0.0395**	**0.0291**	**0.0686**	**0.0000**	**137.5522**	**137.5522**	**0.0330**	**0.0000**	**138.3774**

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					
2026	0.0807	0.7431	0.9009	1.5900e-003	0.0756	0.0311	0.1067	0.0395	0.0291	0.0686	0.0000	137.5521	137.5521	0.0330	0.0000	138.3773
2027	0.6330	0.6274	0.8353	1.4200e-003	4.5600e-003	0.0266	0.0312	1.2200e-003	0.0250	0.0262	0.0000	122.8940	122.8940	0.0287	0.0000	123.6106
Maximum	**0.6330**	**0.7431**	**0.9009**	**1.5900e-003**	**0.0756**	**0.0311**	**0.1067**	**0.0395**	**0.0291**	**0.0686**	**0.0000**	**137.5521**	**137.5521**	**0.0330**	**0.0000**	**138.3773**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

The Address at Tehachapi Subdivision - Phase 7 - Mojave Desert Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-30-2026**	**10-29-2026**	0.5074	0.5074
2	**10-30-2026**	**1-29-2027**	0.4604	0.4604
3	**1-30-2027**	**4-29-2027**	1.0764	1.0764
4	**4-30-2027**	**7-29-2027**	0.0200	0.0200
		Highest	1.0764	1.0764

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4563	0.0262	1.6974	2.8100e-003		0.2180	0.2180		0.2180	0.2180	20.6592	8.9067	29.5659	0.0193	1.6200e-003	30.5326
Energy	3.3000e-003	0.0282	0.0120	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	88.1997	88.1997	2.9200e-003	1.0700e-003	88.5925
Mobile	0.0491	0.4585	0.5107	2.8500e-003	0.2051	1.4300e-003	0.2066	0.0550	1.3400e-003	0.0563	0.0000	265.7683	265.7683	0.0159	0.0000	266.1654
Waste						0.0000	0.0000		0.0000	0.0000	4.7439	0.0000	4.7439	0.2804	0.0000	11.7528
Water						0.0000	0.0000		0.0000	0.0000	0.4134	8.3142	8.7276	0.0428	1.0700e-003	10.1177
Total	**1.5087**	**0.5129**	**2.2201**	**5.8400e-003**	**0.2051**	**0.2217**	**0.4269**	**0.0550**	**0.2216**	**0.2766**	**25.8165**	**371.1889**	**397.0054**	**0.3613**	**3.7600e-003**	**407.1609**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4563	0.0262	1.6974	2.8100e-003		0.2180	0.2180		0.2180	0.2180	20.6592	8.9067	29.5659	0.0193	1.6200e-003	30.5326
Energy	2.6400e-003	0.0225	9.5900e-003	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	77.5658	77.5658	2.6300e-003	9.2000e-004	77.9050
Mobile	0.0491	0.4585	0.5107	2.8500e-003	0.2051	1.4300e-003	0.2066	0.0550	1.3400e-003	0.0563	0.0000	265.7683	265.7683	0.0159	0.0000	266.1654
Waste						0.0000	0.0000		0.0000	0.0000	4.7439	0.0000	4.7439	0.2804	0.0000	11.7528
Water						0.0000	0.0000		0.0000	0.0000	0.4134	8.3142	8.7276	0.0428	1.0700e-003	10.1177
Total	**1.5080**	**0.5072**	**2.2177**	**5.8000e-003**	**0.2051**	**0.2213**	**0.4264**	**0.0550**	**0.2212**	**0.2762**	**25.8165**	**360.5550**	**386.3715**	**0.3610**	**3.6100e-003**	**396.4735**

	ROG	NOx	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	**0.04**	**1.10**	**0.11**	**0.68**	**0.00**	**0.21**	**0.11**	**0.00**	**0.21**	**0.17**	**0.00**	**2.86**	**2.68**	**0.08**	**3.99**	**2.62**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 7 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/30/2026	8/5/2026	5	5	
2	Grading	Grading	8/6/2026	8/17/2026	5	8	
3	Building Construction	Building Construction	8/18/2026	5/3/2027	5	185	
4	Paving	Paving	4/1/2027	4/26/2027	5	18	
5	Architectural Coating	Architectural Coating	4/5/2027	4/28/2027	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

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

<u>OffRoad Equipment</u>

The Address at Tehachapi Subdivision - Phase 7 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3668	8.3668	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3668**	**8.3668**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 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	1.3000e-004	8.0000e-005	8.4000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2496	0.2496	1.0000e-005	0.0000	0.2497
Total	**1.3000e-004**	**8.0000e-005**	**8.4000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2496**	**0.2496**	**1.0000e-005**	**0.0000**	**0.2497**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3667	8.3667	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3667**	**8.3667**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 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	1.3000e-004	8.0000e-005	8.4000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2496	0.2496	1.0000e-005	0.0000	0.2497
Total	**1.3000e-004**	**8.0000e-005**	**8.4000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2496**	**0.2496**	**1.0000e-005**	**0.0000**	**0.2497**

3.3 Grading - 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					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 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	1.7000e-004	1.1000e-004	1.1200e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3327	0.3327	1.0000e-005	0.0000	0.3329
Total	**1.7000e-004**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3327**	**0.3327**	**1.0000e-005**	**0.0000**	**0.3329**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 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	1.7000e-004	1.1000e-004	1.1200e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3327	0.3327	1.0000e-005	0.0000	0.3329
Total	**1.7000e-004**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3327**	**0.3327**	**1.0000e-005**	**0.0000**	**0.3329**

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	0.0670	0.6110	0.7882	1.3200e-003		0.0259	0.0259		0.0243	0.0243	0.0000	113.6405	113.6405	0.0267	0.0000	114.3084
Total	**0.0670**	**0.6110**	**0.7882**	**1.3200e-003**		**0.0259**	**0.0259**		**0.0243**	**0.0243**	**0.0000**	**113.6405**	**113.6405**	**0.0267**	**0.0000**	**114.3084**

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	2.0000e-004	6.9000e-003	1.4400e-003	3.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	2.6325	2.6325	1.6000e-004	0.0000	2.6366
Worker	9.6000e-004	6.2000e-004	6.3800e-003	2.0000e-005	2.7700e-003	2.0000e-005	2.7800e-003	7.3000e-004	1.0000e-005	7.5000e-004	0.0000	1.9022	1.9022	4.0000e-005	0.0000	1.9032
Total	**1.1600e-003**	**7.5200e-003**	**7.8200e-003**	**5.0000e-005**	**3.4200e-003**	**3.0000e-005**	**3.4400e-003**	**9.2000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**4.5347**	**4.5347**	**2.0000e-004**	**0.0000**	**4.5398**

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	0.0670	0.6110	0.7882	1.3200e-003		0.0259	0.0259		0.0243	0.0243	0.0000	113.6404	113.6404	0.0267	0.0000	114.3082
Total	**0.0670**	**0.6110**	**0.7882**	**1.3200e-003**		**0.0259**	**0.0259**		**0.0243**	**0.0243**	**0.0000**	**113.6404**	**113.6404**	**0.0267**	**0.0000**	**114.3082**

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	2.0000e-004	6.9000e-003	1.4400e-003	3.0000e-005	6.5000e-004	1.0000e-005	6.6000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	2.6325	2.6325	1.6000e-004	0.0000	2.6366
Worker	9.6000e-004	6.2000e-004	6.3800e-003	2.0000e-005	2.7700e-003	2.0000e-005	2.7800e-003	7.3000e-004	1.0000e-005	7.5000e-004	0.0000	1.9022	1.9022	4.0000e-005	0.0000	1.9032
Total	**1.1600e-003**	**7.5200e-003**	**7.8200e-003**	**5.0000e-005**	**3.4200e-003**	**3.0000e-005**	**3.4400e-003**	**9.2000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**4.5347**	**4.5347**	**2.0000e-004**	**0.0000**	**4.5398**

3.4 Building Construction - 2027

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	0.0595	0.5424	0.6997	1.1700e-003		0.0230	0.0230		0.0216	0.0216	0.0000	100.8850	100.8850	0.0237	0.0000	101.4778
Total	**0.0595**	**0.5424**	**0.6997**	**1.1700e-003**		**0.0230**	**0.0230**		**0.0216**	**0.0216**	**0.0000**	**100.8850**	**100.8850**	**0.0237**	**0.0000**	**101.4778**

3.4 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	6.0800e-003	1.2300e-003	2.0000e-005	5.8000e-004	1.0000e-005	5.9000e-004	1.7000e-004	1.0000e-005	1.7000e-004	0.0000	2.3252	2.3252	1.4000e-004	0.0000	2.3287
Worker	8.0000e-004	5.0000e-004	5.2600e-003	2.0000e-005	2.4600e-003	1.0000e-005	2.4700e-003	6.5000e-004	1.0000e-005	6.6000e-004	0.0000	1.6324	1.6324	3.0000e-005	0.0000	1.6332
Total	**9.7000e-004**	**6.5800e-003**	**6.4900e-003**	**4.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0600e-003**	**8.2000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**3.9576**	**3.9576**	**1.7000e-004**	**0.0000**	**3.9619**

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	0.0595	0.5424	0.6997	1.1700e-003		0.0230	0.0230		0.0216	0.0216	0.0000	100.8848	100.8848	0.0237	0.0000	101.4777
Total	**0.0595**	**0.5424**	**0.6997**	**1.1700e-003**		**0.0230**	**0.0230**		**0.0216**	**0.0216**	**0.0000**	**100.8848**	**100.8848**	**0.0237**	**0.0000**	**101.4777**

3.4 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	6.0800e-003	1.2300e-003	2.0000e-005	5.8000e-004	1.0000e-005	5.9000e-004	1.7000e-004	1.0000e-005	1.7000e-004	0.0000	2.3252	2.3252	1.4000e-004	0.0000	2.3287
Worker	8.0000e-004	5.0000e-004	5.2600e-003	2.0000e-005	2.4600e-003	1.0000e-005	2.4700e-003	6.5000e-004	1.0000e-005	6.6000e-004	0.0000	1.6324	1.6324	3.0000e-005	0.0000	1.6332
Total	**9.7000e-004**	**6.5800e-003**	**6.4900e-003**	**4.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0600e-003**	**8.2000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**3.9576**	**3.9576**	**1.7000e-004**	**0.0000**	**3.9619**

3.5 Paving - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2027

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	3.0000e-004	3.1100e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9654
Total	**4.7000e-004**	**3.0000e-004**	**3.1100e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2027

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	3.0000e-004	3.1100e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9654
Total	**4.7000e-004**	**3.0000e-004**	**3.1100e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9654**

3.6 Architectural Coating - 2027

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	0.5632					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	**0.5647**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2027

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	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0483	0.0483	0.0000	0.0000	0.0483
Total	**2.0000e-005**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0483**	**0.0483**	**0.0000**	**0.0000**	**0.0483**

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	0.5632					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	**0.5647**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2027

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	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0483	0.0483	0.0000	0.0000	0.0483
Total	**2.0000e-005**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0483**	**0.0483**	**0.0000**	**0.0000**	**0.0483**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0491	0.4585	0.5107	2.8500e-003	0.2051	1.4300e-003	0.2066	0.0550	1.3400e-003	0.0563	0.0000	265.7683	265.7683	0.0159	0.0000	266.1654
Unmitigated	0.0491	0.4585	0.5107	2.8500e-003	0.2051	1.4300e-003	0.2066	0.0550	1.3400e-003	0.0563	0.0000	265.7683	265.7683	0.0159	0.0000	266.1654

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	190.40	198.20	172.40	536,620	536,620
Total	190.40	198.20	172.40	536,620	536,620

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.557081	0.032847	0.173305	0.096009	0.012803	0.004508	0.010534	0.100309	0.001619	0.001800	0.007573	0.000849	0.000764

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	51.4660	51.4660	2.1200e-003	4.4000e-004	51.6501
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	55.5452	55.5452	2.2900e-003	4.7000e-004	55.7439
NaturalGas Mitigated	2.6400e-003	0.0225	9.5900e-003	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	26.0998	26.0998	5.0000e-004	4.8000e-004	26.2549
NaturalGas Unmitigated	3.3000e-003	0.0282	0.0120	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6545	32.6545	6.3000e-004	6.0000e-004	32.8486

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	611923	3.3000e-003	0.0282	0.0120	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6545	32.6545	6.3000e-004	6.0000e-004	32.8486
Total		**3.3000e-003**	**0.0282**	**0.0120**	**1.8000e-004**		**2.2800e-003**	**2.2800e-003**		**2.2800e-003**	**2.2800e-003**	**0.0000**	**32.6545**	**32.6545**	**6.3000e-004**	**6.0000e-004**	**32.8486**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	489092	2.6400e-003	0.0225	9.5900e-003	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	26.0998	26.0998	5.0000e-004	4.8000e-004	26.2549
Total		**2.6400e-003**	**0.0225**	**9.5900e-003**	**1.4000e-004**		**1.8200e-003**	**1.8200e-003**		**1.8200e-003**	**1.8200e-003**	**0.0000**	**26.0998**	**26.0998**	**5.0000e-004**	**4.8000e-004**	**26.2549**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	174330	55.5452	2.2900e-003	4.7000e-004	55.7439
Total		**55.5452**	**2.2900e-003**	**4.7000e-004**	**55.7439**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	161527	51.4660	2.1200e-003	4.4000e-004	51.6501
Total		**51.4660**	**2.1200e-003**	**4.4000e-004**	**51.6501**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4563	0.0262	1.6974	2.8100e-003		0.2180	0.2180		0.2180	0.2180	20.6592	8.9067	29.5659	0.0193	1.6200e-003	30.5326
Unmitigated	1.4563	0.0262	1.6974	2.8100e-003		0.2180	0.2180		0.2180	0.2180	20.6592	8.9067	29.5659	0.0193	1.6200e-003	30.5326

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	0.0563					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2549	0.0245	1.5491	2.8100e-003		0.2172	0.2172		0.2172	0.2172	20.6592	8.6642	29.3233	0.0191	1.6200e-003	30.2842
Landscaping	4.4500e-003	1.7100e-003	0.1484	1.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	0.2426	0.2426	2.3000e-004	0.0000	0.2484
Total	**1.4563**	**0.0262**	**1.6974**	**2.8200e-003**		**0.2180**	**0.2180**		**0.2180**	**0.2180**	**20.6592**	**8.9067**	**29.5659**	**0.0193**	**1.6200e-003**	**30.5326**

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	0.0563					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2549	0.0245	1.5491	2.8100e-003		0.2172	0.2172		0.2172	0.2172	20.6592	8.6642	29.3233	0.0191	1.6200e-003	30.2842
Landscaping	4.4500e-003	1.7100e-003	0.1484	1.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	0.2426	0.2426	2.3000e-004	0.0000	0.2484
Total	**1.4563**	**0.0262**	**1.6974**	**2.8200e-003**		**0.2180**	**0.2180**		**0.2180**	**0.2180**	**20.6592**	**8.9067**	**29.5659**	**0.0193**	**1.6200e-003**	**30.5326**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.7276	0.0428	1.0700e-003	10.1177
Unmitigated	8.7276	0.0428	1.0700e-003	10.1177

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	8.7276	0.0428	1.0700e-003	10.1177
Total		**8.7276**	**0.0428**	**1.0700e-003**	**10.1177**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	8.7276	0.0428	1.0700e-003	10.1177
Total		**8.7276**	**0.0428**	**1.0700e-003**	**10.1177**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.7439	0.2804	0.0000	11.7528
Unmitigated	4.7439	0.2804	0.0000	11.7528

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	23.37	4.7439	0.2804	0.0000	11.7528
Total		**4.7439**	**0.2804**	**0.0000**	**11.7528**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	23.37	4.7439	0.2804	0.0000	11.7528
Total		**4.7439**	**0.2804**	**0.0000**	**11.7528**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 8

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	15.00	Dwelling Unit	3.60	27,000.00	43

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 8-15 units/3.6 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	4.87	3.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.1240	1.1402	1.4088	2.4600e-003	0.0765	0.0477	0.1243	0.0397	0.0448	0.0845	0.0000	212.5135	212.5135	0.0503	0.0000	213.7705
2028	0.4795	0.5136	0.6876	1.1700e-003	3.3800e-003	0.0219	0.0252	9.1000e-004	0.0205	0.0214	0.0000	100.7662	100.7662	0.0237	0.0000	101.3590
Maximum	**0.4795**	**1.1402**	**1.4088**	**2.4600e-003**	**0.0765**	**0.0477**	**0.1243**	**0.0397**	**0.0448**	**0.0845**	**0.0000**	**212.5135**	**212.5135**	**0.0503**	**0.0000**	**213.7705**

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					
2027	0.1240	1.1402	1.4088	2.4600e-003	0.0765	0.0477	0.1243	0.0397	0.0448	0.0845	0.0000	212.5132	212.5132	0.0503	0.0000	213.7702
2028	0.4795	0.5136	0.6876	1.1700e-003	3.3800e-003	0.0219	0.0252	9.1000e-004	0.0205	0.0214	0.0000	100.7661	100.7661	0.0237	0.0000	101.3589
Maximum	**0.4795**	**1.1402**	**1.4088**	**2.4600e-003**	**0.0765**	**0.0477**	**0.1243**	**0.0397**	**0.0448**	**0.0845**	**0.0000**	**212.5132**	**212.5132**	**0.0503**	**0.0000**	**213.7702**

The Address at Tehachapi Subdivision - Phase 8 - Mojave Desert Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-4-2027**	**8-3-2027**	0.5050	0.5050
2	**8-4-2027**	**11-3-2027**	0.4601	0.4601
3	**11-4-2027**	**2-3-2028**	0.4600	0.4600
4	**2-4-2028**	**5-3-2028**	0.4105	0.4105
5	**5-4-2028**	**8-3-2028**	0.3963	0.3963
		Highest	0.5050	0.5050

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0922	0.0197	1.2731	2.1100e-003		0.1635	0.1635		0.1635	0.1635	15.4944	6.6800	22.1744	0.0145	1.2200e-003	22.8994
Energy	2.4700e-003	0.0212	9.0000e-003	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	66.1498	66.1498	2.1900e-003	8.0000e-004	66.4443
Mobile	0.0352	0.3384	0.3644	2.1000e-003	0.1538	1.0100e-003	0.1549	0.0412	9.4000e-004	0.0422	0.0000	195.9979	195.9979	0.0116	0.0000	196.2867
Waste						0.0000	0.0000		0.0000	0.0000	3.5787	0.0000	3.5787	0.2115	0.0000	8.8662
Water						0.0000	0.0000		0.0000	0.0000	0.3101	6.2357	6.5457	0.0321	8.1000e-004	7.5883
Total	**1.1299**	**0.3792**	**1.6464**	**4.3400e-003**	**0.1538**	**0.1662**	**0.3201**	**0.0412**	**0.1662**	**0.2074**	**19.3832**	**275.0634**	**294.4465**	**0.2718**	**2.8300e-003**	**302.0849**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0922	0.0197	1.2731	2.1100e-003		0.1635	0.1635		0.1635	0.1635	15.4944	6.6800	22.1744	0.0145	1.2200e-003	22.8994
Energy	1.9800e-003	0.0169	7.1900e-003	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	58.1744	58.1744	1.9700e-003	6.9000e-004	58.4288
Mobile	0.0352	0.3384	0.3644	2.1000e-003	0.1538	1.0100e-003	0.1549	0.0412	9.4000e-004	0.0422	0.0000	195.9979	195.9979	0.0116	0.0000	196.2867
Waste						0.0000	0.0000		0.0000	0.0000	3.5787	0.0000	3.5787	0.2115	0.0000	8.8662
Water						0.0000	0.0000		0.0000	0.0000	0.3101	6.2357	6.5457	0.0321	8.1000e-004	7.5883
Total	**1.1294**	**0.3749**	**1.6446**	**4.3200e-003**	**0.1538**	**0.1659**	**0.3197**	**0.0412**	**0.1658**	**0.2071**	**19.3832**	**267.0879**	**286.4711**	**0.2716**	**2.7200e-003**	**294.0693**

	ROG	NOx	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	**0.04**	**1.12**	**0.11**	**0.46**	**0.00**	**0.20**	**0.11**	**0.00**	**0.20**	**0.16**	**0.00**	**2.90**	**2.71**	**0.08**	**3.89**	**2.65**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 8 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/4/2027	5/10/2027	5	5	
2	Grading	Grading	5/11/2027	5/20/2027	5	8	
3	Building Construction	Building Construction	5/21/2027	4/6/2028	5	230	
4	Paving	Paving	4/7/2028	5/2/2028	5	18	
5	Architectural Coating	Architectural Coating	5/3/2028	5/26/2028	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 54,675; Residential Outdoor: 18,225; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Address at Tehachapi Subdivision - Phase 8 - Mojave Desert Air Basin, Annual

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

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	5.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2027

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3668	8.3668	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3668**	**8.3668**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	7.8000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2412	0.2412	1.0000e-005	0.0000	0.2414
Total	**1.2000e-004**	**7.0000e-005**	**7.8000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2412**	**0.2412**	**1.0000e-005**	**0.0000**	**0.2414**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3667	8.3667	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0452**	**2.7200e-003**	**0.0479**	**0.0248**	**2.5000e-003**	**0.0273**	**0.0000**	**8.3667**	**8.3667**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	7.8000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2412	0.2412	1.0000e-005	0.0000	0.2414
Total	**1.2000e-004**	**7.0000e-005**	**7.8000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2412**	**0.2412**	**1.0000e-005**	**0.0000**	**0.2414**

3.3 Grading - 2027

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2027

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	1.0400e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3217	0.3217	1.0000e-005	0.0000	0.3218
Total	**1.6000e-004**	**1.0000e-004**	**1.0400e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3217**	**0.3217**	**1.0000e-005**	**0.0000**	**0.3218**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0262**	**2.4900e-003**	**0.0287**	**0.0135**	**2.2900e-003**	**0.0158**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2027

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	1.0400e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3217	0.3217	1.0000e-005	0.0000	0.3218
Total	**1.6000e-004**	**1.0000e-004**	**1.0400e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3217**	**0.3217**	**1.0000e-005**	**0.0000**	**0.3218**

3.4 Building Construction - 2027

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	0.1101	1.0038	1.2948	2.1700e-003		0.0425	0.0425		0.0400	0.0400	0.0000	186.6952	186.6952	0.0439	0.0000	187.7923
Total	**0.1101**	**1.0038**	**1.2948**	**2.1700e-003**		**0.0425**	**0.0425**		**0.0400**	**0.0400**	**0.0000**	**186.6952**	**186.6952**	**0.0439**	**0.0000**	**187.7923**

3.4 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0113	2.2800e-003	5.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	4.3030	4.3030	2.6000e-004	0.0000	4.3095
Worker	1.0600e-003	6.7000e-004	6.9500e-003	2.0000e-005	3.2500e-003	2.0000e-005	3.2600e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.1577	2.1577	4.0000e-005	0.0000	2.1588
Total	**1.3800e-003**	**0.0119**	**9.2300e-003**	**7.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3500e-003**	**1.1700e-003**	**3.0000e-005**	**1.2000e-003**	**0.0000**	**6.4607**	**6.4607**	**3.0000e-004**	**0.0000**	**6.4683**

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	0.1101	1.0038	1.2948	2.1700e-003		0.0425	0.0425		0.0400	0.0400	0.0000	186.6949	186.6949	0.0439	0.0000	187.7921
Total	**0.1101**	**1.0038**	**1.2948**	**2.1700e-003**		**0.0425**	**0.0425**		**0.0400**	**0.0400**	**0.0000**	**186.6949**	**186.6949**	**0.0439**	**0.0000**	**187.7921**

3.4 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0113	2.2800e-003	5.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	4.3030	4.3030	2.6000e-004	0.0000	4.3095
Worker	1.0600e-003	6.7000e-004	6.9500e-003	2.0000e-005	3.2500e-003	2.0000e-005	3.2600e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.1577	2.1577	4.0000e-005	0.0000	2.1588
Total	**1.3800e-003**	**0.0119**	**9.2300e-003**	**7.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3500e-003**	**1.1700e-003**	**3.0000e-005**	**1.2000e-003**	**0.0000**	**6.4607**	**6.4607**	**3.0000e-004**	**0.0000**	**6.4683**

3.4 Building Construction - 2028

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	0.0472	0.4302	0.5549	9.3000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	80.0122	80.0122	0.0188	0.0000	80.4824
Total	**0.0472**	**0.4302**	**0.5549**	**9.3000e-004**		**0.0182**	**0.0182**		**0.0171**	**0.0171**	**0.0000**	**80.0122**	**80.0122**	**0.0188**	**0.0000**	**80.4824**

3.4 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.7900e-003	9.5000e-004	2.0000e-005	4.6000e-004	0.0000	4.7000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	1.8365	1.8365	1.1000e-004	0.0000	1.8392
Worker	4.3000e-004	2.6000e-004	2.7800e-003	1.0000e-005	1.3900e-003	1.0000e-005	1.4000e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.8967	0.8967	2.0000e-005	0.0000	0.8971
Total	**5.6000e-004**	**5.0500e-003**	**3.7300e-003**	**3.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**2.7332**	**2.7332**	**1.3000e-004**	**0.0000**	**2.7364**

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	0.0472	0.4302	0.5549	9.3000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	80.0121	80.0121	0.0188	0.0000	80.4823
Total	**0.0472**	**0.4302**	**0.5549**	**9.3000e-004**		**0.0182**	**0.0182**		**0.0171**	**0.0171**	**0.0000**	**80.0121**	**80.0121**	**0.0188**	**0.0000**	**80.4823**

3.4 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.7900e-003	9.5000e-004	2.0000e-005	4.6000e-004	0.0000	4.7000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	1.8365	1.8365	1.1000e-004	0.0000	1.8392
Worker	4.3000e-004	2.6000e-004	2.7800e-003	1.0000e-005	1.3900e-003	1.0000e-005	1.4000e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	0.8967	0.8967	2.0000e-005	0.0000	0.8971
Total	**5.6000e-004**	**5.0500e-003**	**3.7300e-003**	**3.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**2.7332**	**2.7332**	**1.3000e-004**	**0.0000**	**2.7364**

3.5 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2028

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	4.5000e-004	2.7000e-004	2.9000e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9357	0.9357	2.0000e-005	0.0000	0.9361
Total	**4.5000e-004**	**2.7000e-004**	**2.9000e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9357**	**0.9357**	**2.0000e-005**	**0.0000**	**0.9361**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2028

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	4.5000e-004	2.7000e-004	2.9000e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	0.9357	0.9357	2.0000e-005	0.0000	0.9361
Total	**4.5000e-004**	**2.7000e-004**	**2.9000e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**0.9357**	**0.9357**	**2.0000e-005**	**0.0000**	**0.9361**

3.6 Architectural Coating - 2028

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	0.4224					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	**0.4239**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2028

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	1.5000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0468	0.0468	0.0000	0.0000	0.0468
Total	**2.0000e-005**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0468**	**0.0468**	**0.0000**	**0.0000**	**0.0468**

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	0.4224					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	**0.4239**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2028

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	1.5000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0468	0.0468	0.0000	0.0000	0.0468
Total	**2.0000e-005**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0468**	**0.0468**	**0.0000**	**0.0000**	**0.0468**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0352	0.3384	0.3644	2.1000e-003	0.1538	1.0100e-003	0.1549	0.0412	9.4000e-004	0.0422	0.0000	195.9979	195.9979	0.0116	0.0000	196.2867
Unmitigated	0.0352	0.3384	0.3644	2.1000e-003	0.1538	1.0100e-003	0.1549	0.0412	9.4000e-004	0.0422	0.0000	195.9979	195.9979	0.0116	0.0000	196.2867

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	142.80	148.65	129.30	402,465	402,465
Total	142.80	148.65	129.30	402,465	402,465

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.558874	0.032603	0.173608	0.094861	0.012168	0.004406	0.010558	0.100490	0.001620	0.001772	0.007475	0.000843	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	38.5995	38.5995	1.5900e-003	3.3000e-004	38.7376
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	41.6589	41.6589	1.7200e-003	3.6000e-004	41.8079
NaturalGas Mitigated	1.9800e-003	0.0169	7.1900e-003	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.5749	19.5749	3.8000e-004	3.6000e-004	19.6912
NaturalGas Unmitigated	2.4700e-003	0.0212	9.0000e-003	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4909	24.4909	4.7000e-004	4.5000e-004	24.6364

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	458942	2.4700e-003	0.0212	9.0000e-003	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4909	24.4909	4.7000e-004	4.5000e-004	24.6364
Total		**2.4700e-003**	**0.0212**	**9.0000e-003**	**1.3000e-004**		**1.7100e-003**	**1.7100e-003**		**1.7100e-003**	**1.7100e-003**	**0.0000**	**24.4909**	**24.4909**	**4.7000e-004**	**4.5000e-004**	**24.6364**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	366819	1.9800e-003	0.0169	7.1900e-003	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.5749	19.5749	3.8000e-004	3.6000e-004	19.6912
Total		**1.9800e-003**	**0.0169**	**7.1900e-003**	**1.1000e-004**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**19.5749**	**19.5749**	**3.8000e-004**	**3.6000e-004**	**19.6912**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	130747	41.6589	1.7200e-003	3.6000e-004	41.8079
Total		**41.6589**	**1.7200e-003**	**3.6000e-004**	**41.8079**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	121145	38.5995	1.5900e-003	3.3000e-004	38.7376
Total		**38.5995**	**1.5900e-003**	**3.3000e-004**	**38.7376**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0922	0.0197	1.2731	2.1100e-003		0.1635	0.1635		0.1635	0.1635	15.4944	6.6800	22.1744	0.0145	1.2200e-003	22.8994
Unmitigated	1.0922	0.0197	1.2731	2.1100e-003		0.1635	0.1635		0.1635	0.1635	15.4944	6.6800	22.1744	0.0145	1.2200e-003	22.8994

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	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1055					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.9412	0.0184	1.1618	2.1000e-003		0.1629	0.1629		0.1629	0.1629	15.4944	6.4981	21.9925	0.0143	1.2200e-003	22.7131
Landscaping	3.3400e-003	1.2800e-003	0.1113	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.1819	0.1819	1.7000e-004	0.0000	0.1863
Total	**1.0922**	**0.0197**	**1.2731**	**2.1100e-003**		**0.1635**	**0.1635**		**0.1635**	**0.1635**	**15.4944**	**6.6800**	**22.1744**	**0.0145**	**1.2200e-003**	**22.8994**

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	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1055					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.9412	0.0184	1.1618	2.1000e-003		0.1629	0.1629		0.1629	0.1629	15.4944	6.4981	21.9925	0.0143	1.2200e-003	22.7131
Landscaping	3.3400e-003	1.2800e-003	0.1113	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.1819	0.1819	1.7000e-004	0.0000	0.1863
Total	**1.0922**	**0.0197**	**1.2731**	**2.1100e-003**		**0.1635**	**0.1635**		**0.1635**	**0.1635**	**15.4944**	**6.6800**	**22.1744**	**0.0145**	**1.2200e-003**	**22.8994**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.5457	0.0321	8.1000e-004	7.5883
Unmitigated	6.5457	0.0321	8.1000e-004	7.5883

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.97731 / 0.61613	6.5457	0.0321	8.1000e-004	7.5883
Total		**6.5457**	**0.0321**	**8.1000e-004**	**7.5883**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.97731 / 0.61613	6.5457	0.0321	8.1000e-004	7.5883
Total		**6.5457**	**0.0321**	**8.1000e-004**	**7.5883**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5787	0.2115	0.0000	8.8662
Unmitigated	3.5787	0.2115	0.0000	8.8662

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	17.63	3.5787	0.2115	0.0000	8.8662
Total		**3.5787**	**0.2115**	**0.0000**	**8.8662**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	17.63	3.5787	0.2115	0.0000	8.8662
Total		**3.5787**	**0.2115**	**0.0000**	**8.8662**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 9

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	23.00	Dwelling Unit	5.60	41,400.00	66

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 9-23 units/5.6 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	200.00
tblConstructionPhase	PhaseEndDate	1/19/2029	10/13/2028
tblConstructionPhase	PhaseEndDate	11/24/2028	10/13/2028
tblConstructionPhase	PhaseEndDate	12/22/2028	10/6/2028
tblConstructionPhase	PhaseStartDate	12/23/2028	9/18/2028
tblConstructionPhase	PhaseStartDate	11/25/2028	9/11/2028
tblLandUse	LotAcreage	7.47	5.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.0243	0.2414	0.2021	4.3000e-004	0.1424	0.0101	0.1526	0.0755	9.3100e-003	0.0848	0.0000	37.3714	37.3714	0.0118	0.0000	37.6654
2028	0.8019	1.3979	1.8277	3.1400e-003	0.0298	0.0591	0.0889	0.0114	0.0555	0.0669	0.0000	271.5698	271.5698	0.0637	0.0000	273.1612
Maximum	**0.8019**	**1.3979**	**1.8277**	**3.1400e-003**	**0.1424**	**0.0591**	**0.1526**	**0.0755**	**0.0555**	**0.0848**	**0.0000**	**271.5698**	**271.5698**	**0.0637**	**0.0000**	**273.1612**

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					
2027	0.0243	0.2414	0.2021	4.3000e-004	0.1424	0.0101	0.1526	0.0755	9.3100e-003	0.0848	0.0000	37.3714	37.3714	0.0118	0.0000	37.6653
2028	0.8019	1.3979	1.8277	3.1400e-003	0.0298	0.0591	0.0889	0.0114	0.0555	0.0669	0.0000	271.5695	271.5695	0.0637	0.0000	273.1609
Maximum	**0.8019**	**1.3979**	**1.8277**	**3.1400e-003**	**0.1424**	**0.0591**	**0.1526**	**0.0755**	**0.0555**	**0.0848**	**0.0000**	**271.5695**	**271.5695**	**0.0637**	**0.0000**	**273.1609**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	11-29-2027	2-28-2028	0.5483	0.5483
2	2-29-2028	5-28-2028	0.4504	0.4504
3	5-29-2028	8-28-2028	0.4605	0.4605
4	8-29-2028	9-30-2028	0.5403	0.5403
		Highest	0.5483	0.5483

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6747	0.0302	1.9520	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1124
Energy	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	101.4296	101.4296	3.3600e-003	1.2300e-003	101.8813
Mobile	0.0540	0.5188	0.5587	3.2300e-003	0.2359	1.5500e-003	0.2374	0.0632	1.4400e-003	0.0647	0.0000	300.5301	300.5301	0.0177	0.0000	300.9729
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**1.7326**	**0.5814**	**2.5245**	**6.6800e-003**	**0.2359**	**0.2549**	**0.4908**	**0.0632**	**0.2548**	**0.3180**	**29.7264**	**421.7638**	**451.4902**	**0.4171**	**4.3300e-003**	**463.2105**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6747	0.0302	1.9520	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1124
Energy	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	89.2007	89.2007	3.0200e-003	1.0600e-003	89.5908
Mobile	0.0540	0.5188	0.5587	3.2300e-003	0.2359	1.5500e-003	0.2374	0.0632	1.4400e-003	0.0647	0.0000	300.5301	300.5301	0.0177	0.0000	300.9729
Waste						0.0000	0.0000		0.0000	0.0000	5.4929	0.0000	5.4929	0.3246	0.0000	13.6085
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**1.7318**	**0.5749**	**2.5217**	**6.6400e-003**	**0.2359**	**0.2544**	**0.4903**	**0.0632**	**0.2543**	**0.3175**	**29.7264**	**409.5348**	**439.2612**	**0.4168**	**4.1600e-003**	**450.9200**

	ROG	NOx	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	**0.04**	**1.12**	**0.11**	**0.60**	**0.00**	**0.20**	**0.11**	**0.00**	**0.20**	**0.16**	**0.00**	**2.90**	**2.71**	**0.08**	**3.93**	**2.65**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 9 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/29/2027	12/10/2027	5	10	
2	Grading	Grading	12/11/2027	1/7/2028	5	20	
3	Building Construction	Building Construction	1/8/2028	10/13/2028	5	200	
4	Paving	Paving	9/11/2028	10/6/2028	5	20	
5	Architectural Coating	Architectural Coating	9/18/2028	10/13/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 83,835; Residential Outdoor: 27,945; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Address at Tehachapi Subdivision - Phase 9 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2027

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	2.4000e-004	1.5000e-004	1.5500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4825	0.4825	1.0000e-005	0.0000	0.4827
Total	**2.4000e-004**	**1.5000e-004**	**1.5500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4825**	**0.4825**	**1.0000e-005**	**0.0000**	**0.4827**

3.2 Site Preparation - 2027

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	2.4000e-004	1.5000e-004	1.5500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4825	0.4825	1.0000e-005	0.0000	0.4827
Total	**2.4000e-004**	**1.5000e-004**	**1.5500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4825**	**0.4825**	**1.0000e-005**	**0.0000**	**0.4827**

3.3 Grading - 2027

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					0.0505	0.0000	0.0505	0.0254	0.0000	0.0254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.1149	0.1091	2.2000e-004		4.6800e-003	4.6800e-003		4.3000e-003	4.3000e-003	0.0000	19.5524	19.5524	6.3200e-003	0.0000	19.7105
Total	**0.0114**	**0.1149**	**0.1091**	**2.2000e-004**	**0.0505**	**4.6800e-003**	**0.0552**	**0.0254**	**4.3000e-003**	**0.0297**	**0.0000**	**19.5524**	**19.5524**	**6.3200e-003**	**0.0000**	**19.7105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.9000e-004	1.9400e-003	1.0000e-005	9.1000e-004	0.0000	9.1000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.6031	0.6031	1.0000e-005	0.0000	0.6034
Total	**3.0000e-004**	**1.9000e-004**	**1.9400e-003**	**1.0000e-005**	**9.1000e-004**	**0.0000**	**9.1000e-004**	**2.4000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**0.6031**	**0.6031**	**1.0000e-005**	**0.0000**	**0.6034**

3.3 Grading - 2027

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					0.0505	0.0000	0.0505	0.0254	0.0000	0.0254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.1149	0.1091	2.2000e-004		4.6800e-003	4.6800e-003		4.3000e-003	4.3000e-003	0.0000	19.5523	19.5523	6.3200e-003	0.0000	19.7104
Total	**0.0114**	**0.1149**	**0.1091**	**2.2000e-004**	**0.0505**	**4.6800e-003**	**0.0552**	**0.0254**	**4.3000e-003**	**0.0297**	**0.0000**	**19.5523**	**19.5523**	**6.3200e-003**	**0.0000**	**19.7104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.9000e-004	1.9400e-003	1.0000e-005	9.1000e-004	0.0000	9.1000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.6031	0.6031	1.0000e-005	0.0000	0.6034
Total	**3.0000e-004**	**1.9000e-004**	**1.9400e-003**	**1.0000e-005**	**9.1000e-004**	**0.0000**	**9.1000e-004**	**2.4000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**0.6031**	**0.6031**	**1.0000e-005**	**0.0000**	**0.6034**

3.3 Grading - 2028

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					0.0204	0.0000	0.0204	8.8500e-003	0.0000	8.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8100e-003	0.0383	0.0364	7.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	6.5175	6.5175	2.1100e-003	0.0000	6.5702
Total	**3.8100e-003**	**0.0383**	**0.0364**	**7.0000e-005**	**0.0204**	**1.5600e-003**	**0.0219**	**8.8500e-003**	**1.4300e-003**	**0.0103**	**0.0000**	**6.5175**	**6.5175**	**2.1100e-003**	**0.0000**	**6.5702**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.0000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.1949	0.1949	0.0000	0.0000	0.1950
Total	**9.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.1949**	**0.1949**	**0.0000**	**0.0000**	**0.1950**

3.3 Grading - 2028

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					0.0204	0.0000	0.0204	8.8500e-003	0.0000	8.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8100e-003	0.0383	0.0364	7.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	6.5175	6.5175	2.1100e-003	0.0000	6.5701
Total	**3.8100e-003**	**0.0383**	**0.0364**	**7.0000e-005**	**0.0204**	**1.5600e-003**	**0.0219**	**8.8500e-003**	**1.4300e-003**	**0.0103**	**0.0000**	**6.5175**	**6.5175**	**2.1100e-003**	**0.0000**	**6.5701**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.0000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.1949	0.1949	0.0000	0.0000	0.1950
Total	**9.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.1949**	**0.1949**	**0.0000**	**0.0000**	**0.1950**

3.4 Building Construction - 2028

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	0.1367	1.2470	1.6085	2.7000e-003		0.0528	0.0528		0.0496	0.0496	0.0000	231.9195	231.9195	0.0545	0.0000	233.2824
Total	**0.1367**	**1.2470**	**1.6085**	**2.7000e-003**		**0.0528**	**0.0528**		**0.0496**	**0.0496**	**0.0000**	**231.9195**	**231.9195**	**0.0545**	**0.0000**	**233.2824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9000e-004	0.0139	2.7500e-003	6.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	5.3232	5.3232	3.1000e-004	0.0000	5.3311
Worker	1.9800e-003	1.2100e-003	0.0129	5.0000e-005	6.4500e-003	3.0000e-005	6.4800e-003	1.7100e-003	3.0000e-005	1.7400e-003	0.0000	4.1585	4.1585	8.0000e-005	0.0000	4.1606
Total	**2.3700e-003**	**0.0151**	**0.0157**	**1.1000e-004**	**7.7900e-003**	**4.0000e-005**	**7.8300e-003**	**2.1000e-003**	**4.0000e-005**	**2.1400e-003**	**0.0000**	**9.4818**	**9.4818**	**3.9000e-004**	**0.0000**	**9.4917**

3.4 Building Construction - 2028

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	0.1367	1.2470	1.6085	2.7000e-003		0.0528	0.0528		0.0496	0.0496	0.0000	231.9192	231.9192	0.0545	0.0000	233.2821
Total	**0.1367**	**1.2470**	**1.6085**	**2.7000e-003**		**0.0528**	**0.0528**		**0.0496**	**0.0496**	**0.0000**	**231.9192**	**231.9192**	**0.0545**	**0.0000**	**233.2821**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9000e-004	0.0139	2.7500e-003	6.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	5.3232	5.3232	3.1000e-004	0.0000	5.3311
Worker	1.9800e-003	1.2100e-003	0.0129	5.0000e-005	6.4500e-003	3.0000e-005	6.4800e-003	1.7100e-003	3.0000e-005	1.7400e-003	0.0000	4.1585	4.1585	8.0000e-005	0.0000	4.1606
Total	**2.3700e-003**	**0.0151**	**0.0157**	**1.1000e-004**	**7.7900e-003**	**4.0000e-005**	**7.8300e-003**	**2.1000e-003**	**4.0000e-005**	**2.1400e-003**	**0.0000**	**9.4818**	**9.4818**	**3.9000e-004**	**0.0000**	**9.4917**

3.5 Paving - 2028

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	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.3000e-004	2.4200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7797	0.7797	2.0000e-005	0.0000	0.7801
Total	**3.7000e-004**	**2.3000e-004**	**2.4200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7797**	**0.7797**	**2.0000e-005**	**0.0000**	**0.7801**

3.5 Paving - 2028

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	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.3000e-004	2.4200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7797	0.7797	2.0000e-005	0.0000	0.7801
Total	**3.7000e-004**	**2.3000e-004**	**2.4200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7797**	**0.7797**	**2.0000e-005**	**0.0000**	**0.7801**

3.6 Architectural Coating - 2028

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	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.6493**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1040	0.1040	0.0000	0.0000	0.1040
Total	**5.0000e-005**	**3.0000e-005**	**3.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1040**	**0.1040**	**0.0000**	**0.0000**	**0.1040**

3.6 Architectural Coating - 2028

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	0.6476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.6493**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1040	0.1040	0.0000	0.0000	0.1040
Total	**5.0000e-005**	**3.0000e-005**	**3.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1040**	**0.1040**	**0.0000**	**0.0000**	**0.1040**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0540	0.5188	0.5587	3.2300e-003	0.2359	1.5500e-003	0.2374	0.0632	1.4400e-003	0.0647	0.0000	300.5301	300.5301	0.0177	0.0000	300.9729
Unmitigated	0.0540	0.5188	0.5587	3.2300e-003	0.2359	1.5500e-003	0.2374	0.0632	1.4400e-003	0.0647	0.0000	300.5301	300.5301	0.0177	0.0000	300.9729

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	218.96	227.93	198.26	617,113	617,113
Total	218.96	227.93	198.26	617,113	617,113

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.558874	0.032603	0.173608	0.094861	0.012168	0.004406	0.010558	0.100490	0.001620	0.001772	0.007475	0.000843	0.000722

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	59.1859	59.1859	2.4400e-003	5.1000e-004	59.3976
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	63.8769	63.8769	2.6400e-003	5.5000e-004	64.1054
NaturalGas Mitigated	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
NaturalGas Unmitigated	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	703711	3.7900e-003	0.0324	0.0138	2.1000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	37.5527	37.5527	7.2000e-004	6.9000e-004	37.7759
Total		**3.7900e-003**	**0.0324**	**0.0138**	**2.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.6200e-003**	**2.6200e-003**	**0.0000**	**37.5527**	**37.5527**	**7.2000e-004**	**6.9000e-004**	**37.7759**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	562456	3.0300e-003	0.0259	0.0110	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0148	30.0148	5.8000e-004	5.5000e-004	30.1932
Total		**3.0300e-003**	**0.0259**	**0.0110**	**1.7000e-004**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**30.0148**	**30.0148**	**5.8000e-004**	**5.5000e-004**	**30.1932**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	200479	63.8769	2.6400e-003	5.5000e-004	64.1054
Total		**63.8769**	**2.6400e-003**	**5.5000e-004**	**64.1054**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	185756	59.1859	2.4400e-003	5.1000e-004	59.3976
Total		**59.1859**	**2.4400e-003**	**5.1000e-004**	**59.3976**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6747	0.0302	1.9520	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1124
Unmitigated	1.6747	0.0302	1.9520	3.2400e-003		0.2507	0.2507		0.2507	0.2507	23.7580	10.2427	34.0008	0.0222	1.8700e-003	35.1124

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4432	0.0282	1.7814	3.2300e-003		0.2498	0.2498		0.2498	0.2498	23.7580	9.9638	33.7218	0.0219	1.8700e-003	34.8268
Landscaping	5.1200e-003	1.9700e-003	0.1706	1.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2856
Total	**1.6747**	**0.0302**	**1.9521**	**3.2400e-003**		**0.2507**	**0.2507**		**0.2507**	**0.2507**	**23.7580**	**10.2427**	**34.0008**	**0.0222**	**1.8700e-003**	**35.1124**

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	0.0648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4432	0.0282	1.7814	3.2300e-003		0.2498	0.2498		0.2498	0.2498	23.7580	9.9638	33.7218	0.0219	1.8700e-003	34.8268
Landscaping	5.1200e-003	1.9700e-003	0.1706	1.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	0.2790	0.2790	2.7000e-004	0.0000	0.2856
Total	**1.6747**	**0.0302**	**1.9521**	**3.2400e-003**		**0.2507**	**0.2507**		**0.2507**	**0.2507**	**23.7580**	**10.2427**	**34.0008**	**0.0222**	**1.8700e-003**	**35.1124**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.0368	0.0492	1.2300e-003	11.6353
Unmitigated	10.0368	0.0492	1.2300e-003	11.6353

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.4929	0.3246	0.0000	13.6085
Unmitigated	5.4929	0.3246	0.0000	13.6085

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	27.06	5.4929	0.3246	0.0000	13.6085
Total		**5.4929**	**0.3246**	**0.0000**	**13.6085**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 10

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	26.00	Dwelling Unit	6.30	46,800.00	74

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2029
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 10-26 units/6.3 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	8.44	6.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2028	0.0456	0.4383	0.4422	8.6000e-004	0.1590	0.0183	0.1772	0.0842	0.0170	0.1011	0.0000	74.6237	74.6237	0.0208	0.0000	75.1425
2029	0.8862	1.3982	1.8331	3.1700e-003	0.0109	0.0588	0.0697	2.9300e-003	0.0553	0.0582	0.0000	273.9688	273.9688	0.0631	0.0000	275.5455
Maximum	**0.8862**	**1.3982**	**1.8331**	**3.1700e-003**	**0.1590**	**0.0588**	**0.1772**	**0.0842**	**0.0553**	**0.1011**	**0.0000**	**273.9688**	**273.9688**	**0.0631**	**0.0000**	**275.5455**

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					
2028	0.0456	0.4383	0.4422	8.6000e-004	0.1590	0.0183	0.1772	0.0842	0.0170	0.1011	0.0000	74.6236	74.6236	0.0208	0.0000	75.1424
2029	0.8862	1.3982	1.8331	3.1700e-003	0.0109	0.0588	0.0697	2.9300e-003	0.0553	0.0582	0.0000	273.9685	273.9685	0.0631	0.0000	275.5452
Maximum	**0.8862**	**1.3982**	**1.8331**	**3.1700e-003**	**0.1590**	**0.0588**	**0.1772**	**0.0842**	**0.0553**	**0.1011**	**0.0000**	**273.9685**	**273.9685**	**0.0631**	**0.0000**	**275.5452**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-14-2028**	**1-13-2029**	0.5594	0.5594
2	**1-14-2029**	**4-13-2029**	0.4526	0.4526
3	**4-14-2029**	**7-13-2029**	0.4578	0.4578
4	**7-14-2029**	**9-30-2029**	0.3974	0.3974
		Highest	0.5594	0.5594

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8932	0.0341	2.2067	3.6600e-003		0.2834	0.2834		0.2834	0.2834	26.8569	11.5787	38.4356	0.0251	2.1100e-003	39.6923
Energy	4.2900e-003	0.0367	0.0156	2.3000e-004		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	114.6596	114.6596	3.7900e-003	1.4000e-003	115.1702
Mobile	0.0585	0.5783	0.6012	3.5900e-003	0.2666	1.6500e-003	0.2683	0.0715	1.5400e-003	0.0730	0.0000	334.7509	334.7509	0.0194	0.0000	335.2368
Waste						0.0000	0.0000		0.0000	0.0000	6.1588	0.0000	6.1588	0.3640	0.0000	15.2580
Water						0.0000	0.0000		0.0000	0.0000	0.5374	10.8085	11.3459	0.0557	1.4000e-003	13.1530
Total	**1.9559**	**0.6490**	**2.8234**	**7.4800e-003**	**0.2666**	**0.2880**	**0.5547**	**0.0715**	**0.2879**	**0.3594**	**33.5531**	**471.7977**	**505.3508**	**0.4679**	**4.9100e-003**	**518.5103**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8932	0.0341	2.2067	3.6600e-003		0.2834	0.2834		0.2834	0.2834	26.8569	11.5787	38.4356	0.0251	2.1100e-003	39.6923
Energy	3.4300e-003	0.0293	0.0125	1.9000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	100.8355	100.8355	3.4100e-003	1.1900e-003	101.2765
Mobile	0.0585	0.5783	0.6012	3.5900e-003	0.2666	1.6500e-003	0.2683	0.0715	1.5400e-003	0.0730	0.0000	334.7509	334.7509	0.0194	0.0000	335.2368
Waste						0.0000	0.0000		0.0000	0.0000	6.1588	0.0000	6.1588	0.3640	0.0000	15.2580
Water						0.0000	0.0000		0.0000	0.0000	0.5374	10.8085	11.3459	0.0557	1.4000e-003	13.1530
Total	**1.9551**	**0.6416**	**2.8203**	**7.4400e-003**	**0.2666**	**0.2874**	**0.5541**	**0.0715**	**0.2873**	**0.3588**	**33.5531**	**457.9737**	**491.5268**	**0.4676**	**4.7000e-003**	**504.6166**

	ROG	NOx	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	**0.04**	**1.13**	**0.11**	**0.53**	**0.00**	**0.20**	**0.11**	**0.00**	**0.20**	**0.16**	**0.00**	**2.93**	**2.74**	**0.08**	**4.28**	**2.68**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 10 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/14/2028	10/27/2028	5	10	
2	Grading	Grading	10/28/2028	11/24/2028	5	20	
3	Building Construction	Building Construction	11/25/2028	10/12/2029	5	230	
4	Paving	Paving	10/13/2029	11/9/2029	5	20	
5	Architectural Coating	Architectural Coating	11/10/2029	12/7/2029	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 94,770; Residential Outdoor: 31,590; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

The Address at Tehachapi Subdivision - Phase 10 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2028

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	2.2000e-004	1.4000e-004	1.4500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4678	0.4678	1.0000e-005	0.0000	0.4681
Total	**2.2000e-004**	**1.4000e-004**	**1.4500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4678**	**0.4678**	**1.0000e-005**	**0.0000**	**0.4681**

3.2 Site Preparation - 2028

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	2.2000e-004	1.4000e-004	1.4500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4678	0.4678	1.0000e-005	0.0000	0.4681
Total	**2.2000e-004**	**1.4000e-004**	**1.4500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4678**	**0.4678**	**1.0000e-005**	**0.0000**	**0.4681**

3.3 Grading - 2028

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1532	0.1454	3.0000e-004		6.2400e-003	6.2400e-003		5.7400e-003	5.7400e-003	0.0000	26.0698	26.0698	8.4300e-003	0.0000	26.2806
Total	**0.0152**	**0.1532**	**0.1454**	**3.0000e-004**	**0.0655**	**6.2400e-003**	**0.0718**	**0.0337**	**5.7400e-003**	**0.0394**	**0.0000**	**26.0698**	**26.0698**	**8.4300e-003**	**0.0000**	**26.2806**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.3000e-004	2.4200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7797	0.7797	2.0000e-005	0.0000	0.7801
Total	**3.7000e-004**	**2.3000e-004**	**2.4200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7797**	**0.7797**	**2.0000e-005**	**0.0000**	**0.7801**

3.3 Grading - 2028

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1532	0.1454	3.0000e-004		6.2400e-003	6.2400e-003		5.7400e-003	5.7400e-003	0.0000	26.0698	26.0698	8.4300e-003	0.0000	26.2806
Total	**0.0152**	**0.1532**	**0.1454**	**3.0000e-004**	**0.0655**	**6.2400e-003**	**0.0718**	**0.0337**	**5.7400e-003**	**0.0394**	**0.0000**	**26.0698**	**26.0698**	**8.4300e-003**	**0.0000**	**26.2806**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.3000e-004	2.4200e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7797	0.7797	2.0000e-005	0.0000	0.7801
Total	**3.7000e-004**	**2.3000e-004**	**2.4200e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7797**	**0.7797**	**2.0000e-005**	**0.0000**	**0.7801**

3.4 Building Construction - 2028

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	0.0171	0.1559	0.2011	3.4000e-004		6.5900e-003	6.5900e-003		6.2000e-003	6.2000e-003	0.0000	28.9899	28.9899	6.8100e-003	0.0000	29.1603
Total	**0.0171**	**0.1559**	**0.2011**	**3.4000e-004**		**6.5900e-003**	**6.5900e-003**		**6.2000e-003**	**6.2000e-003**	**0.0000**	**28.9899**	**28.9899**	**6.8100e-003**	**0.0000**	**29.1603**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.6000e-003	5.2000e-004	1.0000e-005	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9981	0.9981	6.0000e-005	0.0000	0.9996
Worker	2.8000e-004	1.7000e-004	1.8100e-003	1.0000e-005	9.1000e-004	0.0000	9.1000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.5848	0.5848	1.0000e-005	0.0000	0.5851
Total	**3.5000e-004**	**2.7700e-003**	**2.3300e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**1.1600e-003**	**3.1000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**1.5829**	**1.5829**	**7.0000e-005**	**0.0000**	**1.5847**

3.4 Building Construction - 2028

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	0.0171	0.1559	0.2011	3.4000e-004		6.5900e-003	6.5900e-003		6.2000e-003	6.2000e-003	0.0000	28.9899	28.9899	6.8100e-003	0.0000	29.1603
Total	**0.0171**	**0.1559**	**0.2011**	**3.4000e-004**		**6.5900e-003**	**6.5900e-003**		**6.2000e-003**	**6.2000e-003**	**0.0000**	**28.9899**	**28.9899**	**6.8100e-003**	**0.0000**	**29.1603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.6000e-003	5.2000e-004	1.0000e-005	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9981	0.9981	6.0000e-005	0.0000	0.9996
Worker	2.8000e-004	1.7000e-004	1.8100e-003	1.0000e-005	9.1000e-004	0.0000	9.1000e-004	2.4000e-004	0.0000	2.5000e-004	0.0000	0.5848	0.5848	1.0000e-005	0.0000	0.5851
Total	**3.5000e-004**	**2.7700e-003**	**2.3300e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**1.1600e-003**	**3.1000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**1.5829**	**1.5829**	**7.0000e-005**	**0.0000**	**1.5847**

3.4 Building Construction - 2029

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	0.1402	1.2781	1.6487	2.7600e-003		0.0541	0.0541		0.0509	0.0509	0.0000	237.7174	237.7174	0.0559	0.0000	239.1144
Total	**0.1402**	**1.2781**	**1.6487**	**2.7600e-003**		**0.0541**	**0.0541**		**0.0509**	**0.0509**	**0.0000**	**237.7174**	**237.7174**	**0.0559**	**0.0000**	**239.1144**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0213	4.1100e-003	9.0000e-005	2.0500e-003	2.0000e-005	2.0700e-003	5.9000e-004	2.0000e-005	6.1000e-004	0.0000	8.1567	8.1567	4.7000e-004	0.0000	8.1686
Worker	2.1300e-003	1.2700e-003	0.0138	5.0000e-005	7.4400e-003	3.0000e-005	7.4700e-003	1.9800e-003	3.0000e-005	2.0100e-003	0.0000	4.6629	4.6629	8.0000e-005	0.0000	4.6650
Total	**2.7200e-003**	**0.0225**	**0.0180**	**1.4000e-004**	**9.4900e-003**	**5.0000e-005**	**9.5400e-003**	**2.5700e-003**	**5.0000e-005**	**2.6200e-003**	**0.0000**	**12.8196**	**12.8196**	**5.5000e-004**	**0.0000**	**12.8336**

3.4 Building Construction - 2029

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	0.1402	1.2781	1.6487	2.7600e-003		0.0541	0.0541		0.0509	0.0509	0.0000	237.7172	237.7172	0.0559	0.0000	239.1142
Total	**0.1402**	**1.2781**	**1.6487**	**2.7600e-003**		**0.0541**	**0.0541**		**0.0509**	**0.0509**	**0.0000**	**237.7172**	**237.7172**	**0.0559**	**0.0000**	**239.1142**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0213	4.1100e-003	9.0000e-005	2.0500e-003	2.0000e-005	2.0700e-003	5.9000e-004	2.0000e-005	6.1000e-004	0.0000	8.1567	8.1567	4.7000e-004	0.0000	8.1686
Worker	2.1300e-003	1.2700e-003	0.0138	5.0000e-005	7.4400e-003	3.0000e-005	7.4700e-003	1.9800e-003	3.0000e-005	2.0100e-003	0.0000	4.6629	4.6629	8.0000e-005	0.0000	4.6650
Total	**2.7200e-003**	**0.0225**	**0.0180**	**1.4000e-004**	**9.4900e-003**	**5.0000e-005**	**9.5400e-003**	**2.5700e-003**	**5.0000e-005**	**2.6200e-003**	**0.0000**	**12.8196**	**12.8196**	**5.5000e-004**	**0.0000**	**12.8336**

3.5 Paving - 2029

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	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.1000e-004	2.2500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7582	0.7582	1.0000e-005	0.0000	0.7585
Total	**3.5000e-004**	**2.1000e-004**	**2.2500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7582**	**0.7582**	**1.0000e-005**	**0.0000**	**0.7585**

3.5 Paving - 2029

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	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.1000e-004	2.2500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7582	0.7582	1.0000e-005	0.0000	0.7585
Total	**3.5000e-004**	**2.1000e-004**	**2.2500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7582**	**0.7582**	**1.0000e-005**	**0.0000**	**0.7585**

3.6 Architectural Coating - 2029

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	0.7321					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.7338**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1011	0.1011	0.0000	0.0000	0.1011
Total	**5.0000e-005**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1011**	**0.1011**	**0.0000**	**0.0000**	**0.1011**

3.6 Architectural Coating - 2029

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	0.7321					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.7338**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1011	0.1011	0.0000	0.0000	0.1011
Total	**5.0000e-005**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1011**	**0.1011**	**0.0000**	**0.0000**	**0.1011**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0585	0.5783	0.6012	3.5900e-003	0.2666	1.6500e-003	0.2683	0.0715	1.5400e-003	0.0730	0.0000	334.7509	334.7509	0.0194	0.0000	335.2368
Unmitigated	0.0585	0.5783	0.6012	3.5900e-003	0.2666	1.6500e-003	0.2683	0.0715	1.5400e-003	0.0730	0.0000	334.7509	334.7509	0.0194	0.0000	335.2368

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	247.52	257.66	224.12	697,607	697,607
Total	247.52	257.66	224.12	697,607	697,607

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.560357	0.032391	0.173846	0.093930	0.011621	0.004320	0.010585	0.100671	0.001621	0.001743	0.007392	0.000838	0.000685

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	66.9058	66.9058	2.7600e-003	5.7000e-004	67.1451
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	72.2087	72.2087	2.9800e-003	6.2000e-004	72.4670
NaturalGas Mitigated	3.4300e-003	0.0293	0.0125	1.9000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	33.9298	33.9298	6.5000e-004	6.2000e-004	34.1314
NaturalGas Unmitigated	4.2900e-003	0.0367	0.0156	2.3000e-004		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	42.4509	42.4509	8.1000e-004	7.8000e-004	42.7032

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	795500	4.2900e-003	0.0367	0.0156	2.3000e-004		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	42.4509	42.4509	8.1000e-004	7.8000e-004	42.7032
Total		**4.2900e-003**	**0.0367**	**0.0156**	**2.3000e-004**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**42.4509**	**42.4509**	**8.1000e-004**	**7.8000e-004**	**42.7032**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	635820	3.4300e-003	0.0293	0.0125	1.9000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	33.9298	33.9298	6.5000e-004	6.2000e-004	34.1314
Total		**3.4300e-003**	**0.0293**	**0.0125**	**1.9000e-004**		**2.3700e-003**	**2.3700e-003**		**2.3700e-003**	**2.3700e-003**	**0.0000**	**33.9298**	**33.9298**	**6.5000e-004**	**6.2000e-004**	**34.1314**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	226628	72.2087	2.9800e-003	6.2000e-004	72.4670
Total		**72.2087**	**2.9800e-003**	**6.2000e-004**	**72.4670**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	209985	66.9058	2.7600e-003	5.7000e-004	67.1451
Total		**66.9058**	**2.7600e-003**	**5.7000e-004**	**67.1451**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8932	0.0341	2.2067	3.6600e-003		0.2834	0.2834		0.2834	0.2834	26.8569	11.5787	38.4356	0.0251	2.1100e-003	39.6923
Unmitigated	1.8932	0.0341	2.2067	3.6600e-003		0.2834	0.2834		0.2834	0.2834	26.8569	11.5787	38.4356	0.0251	2.1100e-003	39.6923

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	0.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1828					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.6314	0.0319	2.0138	3.6500e-003		0.2824	0.2824		0.2824	0.2824	26.8569	11.2634	38.1203	0.0248	2.1100e-003	39.3694
Landscaping	5.7900e-003	2.2200e-003	0.1929	1.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	0.3154	0.3154	3.0000e-004	0.0000	0.3229
Total	**1.8932**	**0.0341**	**2.2067**	**3.6600e-003**		**0.2834**	**0.2834**		**0.2834**	**0.2834**	**26.8569**	**11.5787**	**38.4356**	**0.0251**	**2.1100e-003**	**39.6923**

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	0.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1828					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.6314	0.0319	2.0138	3.6500e-003		0.2824	0.2824		0.2824	0.2824	26.8569	11.2634	38.1203	0.0248	2.1100e-003	39.3694
Landscaping	5.7900e-003	2.2200e-003	0.1929	1.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	0.3154	0.3154	3.0000e-004	0.0000	0.3229
Total	**1.8932**	**0.0341**	**2.2067**	**3.6600e-003**		**0.2834**	**0.2834**		**0.2834**	**0.2834**	**26.8569**	**11.5787**	**38.4356**	**0.0251**	**2.1100e-003**	**39.6923**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.3459	0.0557	1.4000e-003	13.1530
Unmitigated	11.3459	0.0557	1.4000e-003	13.1530

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.694 / 1.06796	11.3459	0.0557	1.4000e-003	13.1530
Total		**11.3459**	**0.0557**	**1.4000e-003**	**13.1530**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.694 / 1.06796	11.3459	0.0557	1.4000e-003	13.1530
Total		**11.3459**	**0.0557**	**1.4000e-003**	**13.1530**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.1588	0.3640	0.0000	15.2580
Unmitigated	6.1588	0.3640	0.0000	15.2580

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	30.34	6.1588	0.3640	0.0000	15.2580
Total		**6.1588**	**0.3640**	**0.0000**	**15.2580**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	30.34	6.1588	0.3640	0.0000	15.2580
Total		**6.1588**	**0.3640**	**0.0000**	**15.2580**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Address at Tehachapi Subdivision - Phase 11

Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	24.00	Dwelling Unit	5.80	43,200.00	69

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Phase 11-24 units/5.8 acres

Construction Phase - Construction schedule adjusted per client's timeline

Landscape Equipment - Snow days adjusted

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	208.00
tblConstructionPhase	PhaseEndDate	12/3/2030	8/30/2030
tblConstructionPhase	PhaseEndDate	10/8/2030	9/8/2030
tblConstructionPhase	PhaseEndDate	11/5/2030	8/28/2030
tblConstructionPhase	PhaseStartDate	11/6/2030	8/5/2030
tblConstructionPhase	PhaseStartDate	10/9/2030	8/1/2030
tblLandUse	LotAcreage	7.79	5.80

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2029	0.0484	0.4636	0.4743	9.1000e-004	0.1591	0.0193	0.1785	0.0842	0.0180	0.1022	0.0000	79.4582	79.4582	0.0219	0.0000	80.0045
2030	0.8107	0.8096	1.6397	3.2100e-003	9.6600e-003	0.0168	0.0265	2.6100e-003	0.0168	0.0194	0.0000	273.8229	273.8229	0.0112	0.0000	274.1019
Maximum	**0.8107**	**0.8096**	**1.6397**	**3.2100e-003**	**0.1591**	**0.0193**	**0.1785**	**0.0842**	**0.0180**	**0.1022**	**0.0000**	**273.8229**	**273.8229**	**0.0219**	**0.0000**	**274.1019**

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					
2029	0.0484	0.4636	0.4743	9.1000e-004	0.1591	0.0193	0.1785	0.0842	0.0180	0.1022	0.0000	79.4581	79.4581	0.0219	0.0000	80.0044
2030	0.8107	0.8096	1.6397	3.2100e-003	9.6600e-003	0.0168	0.0265	2.6100e-003	0.0168	0.0194	0.0000	273.8226	273.8226	0.0112	0.0000	274.1016
Maximum	**0.8107**	**0.8096**	**1.6397**	**3.2100e-003**	**0.1591**	**0.0193**	**0.1785**	**0.0842**	**0.0180**	**0.1022**	**0.0000**	**273.8226**	**273.8226**	**0.0219**	**0.0000**	**274.1016**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-10-2029**	**1-9-2030**	0.5445	0.5445
2	**1-10-2030**	**4-9-2030**	0.3049	0.3049
3	**4-10-2030**	**7-9-2030**	0.3084	0.3084
4	**7-10-2030**	**9-30-2030**	0.9291	0.9291
		Highest	0.9291	0.9291

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7475	0.0315	2.0366	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6390
Energy	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	105.8396	105.8396	3.5000e-003	1.2900e-003	106.3109
Mobile	0.0518	0.5274	0.5308	3.2700e-003	0.2461	1.4400e-003	0.2475	0.0659	1.3400e-003	0.0673	0.0000	305.0611	305.0611	0.0175	0.0000	305.4972
Waste						0.0000	0.0000		0.0000	0.0000	5.7426	0.0000	5.7426	0.3394	0.0000	14.2271
Water						0.0000	0.0000		0.0000	0.0000	0.4961	9.9771	10.4732	0.0514	1.2900e-003	12.1412
Total	**1.8033**	**0.5927**	**2.5819**	**6.8700e-003**	**0.2461**	**0.2658**	**0.5119**	**0.0659**	**0.2657**	**0.3316**	**31.0297**	**431.5659**	**462.5955**	**0.4349**	**4.5300e-003**	**474.8155**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7475	0.0315	2.0366	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6390
Energy	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	96.1546	96.1546	3.2800e-003	1.1300e-003	96.5727
Mobile	0.0518	0.5274	0.5308	3.2700e-003	0.2461	1.4400e-003	0.2475	0.0659	1.3400e-003	0.0673	0.0000	305.0611	305.0611	0.0175	0.0000	305.4972
Waste						0.0000	0.0000		0.0000	0.0000	5.7426	0.0000	5.7426	0.3394	0.0000	14.2271
Water						0.0000	0.0000		0.0000	0.0000	0.4961	9.9771	10.4732	0.0514	1.2900e-003	12.1412
Total	**1.8025**	**0.5859**	**2.5790**	**6.8200e-003**	**0.2461**	**0.2653**	**0.5113**	**0.0659**	**0.2652**	**0.3311**	**31.0297**	**421.8809**	**452.9105**	**0.4346**	**4.3700e-003**	**465.0773**

	ROG	NOx	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	**0.04**	**1.15**	**0.11**	**0.73**	**0.00**	**0.21**	**0.11**	**0.00**	**0.21**	**0.17**	**0.00**	**2.24**	**2.09**	**0.05**	**3.53**	**2.05**

3.0 Construction Detail

Construction Phase

The Address at Tehachapi Subdivision - Phase 11 - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/10/2029	10/23/2029	5	10	
2	Grading	Grading	10/24/2029	11/20/2029	5	20	
3	Building Construction	Building Construction	11/21/2029	9/8/2030	5	208	
4	Paving	Paving	8/1/2030	8/28/2030	5	20	
5	Architectural Coating	Architectural Coating	8/5/2030	8/30/2030	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 87,480; Residential Outdoor: 29,160; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Address at Tehachapi Subdivision - Phase 11 - Mojave Desert Air Basin, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2029

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	1.2000e-004	1.3500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4549	0.4549	1.0000e-005	0.0000	0.4551
Total	**2.1000e-004**	**1.2000e-004**	**1.3500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4549**	**0.4549**	**1.0000e-005**	**0.0000**	**0.4551**

3.2 Site Preparation - 2029

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.0903**	**5.4300e-003**	**0.0958**	**0.0497**	**5.0000e-003**	**0.0547**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

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	1.2000e-004	1.3500e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.4549	0.4549	1.0000e-005	0.0000	0.4551
Total	**2.1000e-004**	**1.2000e-004**	**1.3500e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.4549**	**0.4549**	**1.0000e-005**	**0.0000**	**0.4551**

3.3 Grading - 2029

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1532	0.1454	3.0000e-004		6.2400e-003	6.2400e-003		5.7400e-003	5.7400e-003	0.0000	26.0698	26.0698	8.4300e-003	0.0000	26.2806
Total	**0.0152**	**0.1532**	**0.1454**	**3.0000e-004**	**0.0655**	**6.2400e-003**	**0.0718**	**0.0337**	**5.7400e-003**	**0.0394**	**0.0000**	**26.0698**	**26.0698**	**8.4300e-003**	**0.0000**	**26.2806**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.1000e-004	2.2500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7582	0.7582	1.0000e-005	0.0000	0.7585
Total	**3.5000e-004**	**2.1000e-004**	**2.2500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7582**	**0.7582**	**1.0000e-005**	**0.0000**	**0.7585**

3.3 Grading - 2029

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1532	0.1454	3.0000e-004		6.2400e-003	6.2400e-003		5.7400e-003	5.7400e-003	0.0000	26.0698	26.0698	8.4300e-003	0.0000	26.2806
Total	**0.0152**	**0.1532**	**0.1454**	**3.0000e-004**	**0.0655**	**6.2400e-003**	**0.0718**	**0.0337**	**5.7400e-003**	**0.0394**	**0.0000**	**26.0698**	**26.0698**	**8.4300e-003**	**0.0000**	**26.2806**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.1000e-004	2.2500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.7582	0.7582	1.0000e-005	0.0000	0.7585
Total	**3.5000e-004**	**2.1000e-004**	**2.2500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.7582**	**0.7582**	**1.0000e-005**	**0.0000**	**0.7585**

3.4 Building Construction - 2029

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	0.0198	0.1808	0.2332	3.9000e-004		7.6500e-003	7.6500e-003		7.2000e-003	7.2000e-003	0.0000	33.6283	33.6283	7.9000e-003	0.0000	33.8260
Total	**0.0198**	**0.1808**	**0.2332**	**3.9000e-004**		**7.6500e-003**	**7.6500e-003**		**7.2000e-003**	**7.2000e-003**	**0.0000**	**33.6283**	**33.6283**	**7.9000e-003**	**0.0000**	**33.8260**

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	8.0000e-005	3.0100e-003	5.8000e-004	1.0000e-005	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	1.1539	1.1539	7.0000e-005	0.0000	1.1556
Worker	3.0000e-004	1.8000e-004	1.9600e-003	1.0000e-005	1.0500e-003	0.0000	1.0600e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.6596	0.6596	1.0000e-005	0.0000	0.6599
Total	**3.8000e-004**	**3.1900e-003**	**2.5400e-003**	**2.0000e-005**	**1.3400e-003**	**0.0000**	**1.3500e-003**	**3.6000e-004**	**0.0000**	**3.7000e-004**	**0.0000**	**1.8135**	**1.8135**	**8.0000e-005**	**0.0000**	**1.8155**

3.4 Building Construction - 2029

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	0.0198	0.1808	0.2332	3.9000e-004		7.6500e-003	7.6500e-003		7.2000e-003	7.2000e-003	0.0000	33.6283	33.6283	7.9000e-003	0.0000	33.8259
Total	**0.0198**	**0.1808**	**0.2332**	**3.9000e-004**		**7.6500e-003**	**7.6500e-003**		**7.2000e-003**	**7.2000e-003**	**0.0000**	**33.6283**	**33.6283**	**7.9000e-003**	**0.0000**	**33.8259**

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	8.0000e-005	3.0100e-003	5.8000e-004	1.0000e-005	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	1.1539	1.1539	7.0000e-005	0.0000	1.1556
Worker	3.0000e-004	1.8000e-004	1.9600e-003	1.0000e-005	1.0500e-003	0.0000	1.0600e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.6596	0.6596	1.0000e-005	0.0000	0.6599
Total	**3.8000e-004**	**3.1900e-003**	**2.5400e-003**	**2.0000e-005**	**1.3400e-003**	**0.0000**	**1.3500e-003**	**3.6000e-004**	**0.0000**	**3.7000e-004**	**0.0000**	**1.8135**	**1.8135**	**8.0000e-005**	**0.0000**	**1.8155**

3.4 Building Construction - 2030

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	0.1172	0.7102	1.4461	2.7700e-003		0.0133	0.0133		0.0133	0.0133	0.0000	235.2606	235.2606	9.4400e-003	0.0000	235.4966
Total	**0.1172**	**0.7102**	**1.4461**	**2.7700e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**	**0.0000**	**235.2606**	**235.2606**	**9.4400e-003**	**0.0000**	**235.4966**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1000e-004	0.0185	3.5200e-003	7.0000e-005	1.7900e-003	2.0000e-005	1.8100e-003	5.2000e-004	2.0000e-005	5.3000e-004	0.0000	7.1023	7.1023	4.0000e-004	0.0000	7.1124
Worker	1.7200e-003	1.0100e-003	0.0113	4.0000e-005	6.4900e-003	3.0000e-005	6.5200e-003	1.7300e-003	3.0000e-005	1.7500e-003	0.0000	3.9695	3.9695	7.0000e-005	0.0000	3.9712
Total	**2.2300e-003**	**0.0195**	**0.0148**	**1.1000e-004**	**8.2800e-003**	**5.0000e-005**	**8.3300e-003**	**2.2500e-003**	**5.0000e-005**	**2.2800e-003**	**0.0000**	**11.0718**	**11.0718**	**4.7000e-004**	**0.0000**	**11.0836**

3.4 Building Construction - 2030

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	0.1172	0.7102	1.4461	2.7700e-003		0.0133	0.0133		0.0133	0.0133	0.0000	235.2603	235.2603	9.4400e-003	0.0000	235.4963
Total	**0.1172**	**0.7102**	**1.4461**	**2.7700e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**	**0.0000**	**235.2603**	**235.2603**	**9.4400e-003**	**0.0000**	**235.4963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1000e-004	0.0185	3.5200e-003	7.0000e-005	1.7900e-003	2.0000e-005	1.8100e-003	5.2000e-004	2.0000e-005	5.3000e-004	0.0000	7.1023	7.1023	4.0000e-004	0.0000	7.1124
Worker	1.7200e-003	1.0100e-003	0.0113	4.0000e-005	6.4900e-003	3.0000e-005	6.5200e-003	1.7300e-003	3.0000e-005	1.7500e-003	0.0000	3.9695	3.9695	7.0000e-005	0.0000	3.9712
Total	**2.2300e-003**	**0.0195**	**0.0148**	**1.1000e-004**	**8.2800e-003**	**5.0000e-005**	**8.3300e-003**	**2.2500e-003**	**5.0000e-005**	**2.2800e-003**	**0.0000**	**11.0718**	**11.0718**	**4.7000e-004**	**0.0000**	**11.0836**

3.5 Paving - 2030

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	0.0139	0.0712	0.1585	2.8000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1278
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.0712**	**0.1585**	**2.8000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.1000e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2100e-003	3.2000e-004	0.0000	3.3000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7395
Total	**3.2000e-004**	**1.9000e-004**	**2.1000e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**0.7392**	**0.7392**	**1.0000e-005**	**0.0000**	**0.7395**

3.5 Paving - 2030

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	0.0139	0.0712	0.1585	2.8000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1277
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.0712**	**0.1585**	**2.8000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1277**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	1.9000e-004	2.1000e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2100e-003	3.2000e-004	0.0000	3.3000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7395
Total	**3.2000e-004**	**1.9000e-004**	**2.1000e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**0.7392**	**0.7392**	**1.0000e-005**	**0.0000**	**0.7395**

3.6 Architectural Coating - 2030

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	0.6758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	8.5600e-003	0.0180	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.6771**	**8.5600e-003**	**0.0180**	**3.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

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	4.0000e-005	3.0000e-005	2.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0986	0.0986	0.0000	0.0000	0.0986
Total	**4.0000e-005**	**3.0000e-005**	**2.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0986**	**0.0986**	**0.0000**	**0.0000**	**0.0986**

3.6 Architectural Coating - 2030

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	0.6758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	8.5600e-003	0.0180	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.6771**	**8.5600e-003**	**0.0180**	**3.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

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	4.0000e-005	3.0000e-005	2.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0986	0.0986	0.0000	0.0000	0.0986
Total	**4.0000e-005**	**3.0000e-005**	**2.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0986**	**0.0986**	**0.0000**	**0.0000**	**0.0986**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0518	0.5274	0.5308	3.2700e-003	0.2461	1.4400e-003	0.2475	0.0659	1.3400e-003	0.0673	0.0000	305.0611	305.0611	0.0175	0.0000	305.4972
Unmitigated	0.0518	0.5274	0.5308	3.2700e-003	0.2461	1.4400e-003	0.2475	0.0659	1.3400e-003	0.0673	0.0000	305.0611	305.0611	0.0175	0.0000	305.4972

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	228.48	237.84	206.88	643,944	643,944
Total	228.48	237.84	206.88	643,944	643,944

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.561566	0.032210	0.174023	0.093184	0.011147	0.004249	0.010615	0.100857	0.001622	0.001721	0.007322	0.000832	0.000653

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	64.8348	64.8348	2.6800e-003	5.5000e-004	65.0668
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	66.6542	66.6542	2.7500e-003	5.7000e-004	66.8926
NaturalGas Mitigated	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	31.3198	31.3198	6.0000e-004	5.7000e-004	31.5059
NaturalGas Unmitigated	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.1855	39.1855	7.5000e-004	7.2000e-004	39.4183

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	734308	3.9600e-003	0.0338	0.0144	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.1855	39.1855	7.5000e-004	7.2000e-004	39.4183
Total		**3.9600e-003**	**0.0338**	**0.0144**	**2.2000e-004**		**2.7400e-003**	**2.7400e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**39.1855**	**39.1855**	**7.5000e-004**	**7.2000e-004**	**39.4183**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	586911	3.1600e-003	0.0270	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003	0.0000	31.3198	31.3198	6.0000e-004	5.7000e-004	31.5059
Total		**3.1600e-003**	**0.0270**	**0.0115**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**	**0.0000**	**31.3198**	**31.3198**	**6.0000e-004**	**5.7000e-004**	**31.5059**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	209196	66.6542	2.7500e-003	5.7000e-004	66.8926
Total		**66.6542**	**2.7500e-003**	**5.7000e-004**	**66.8926**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	203486	64.8348	2.6800e-003	5.5000e-004	65.0668
Total		**64.8348**	**2.6800e-003**	**5.5000e-004**	**65.0668**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7475	0.0315	2.0366	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6390
Unmitigated	1.7475	0.0315	2.0366	3.3800e-003		0.2616	0.2616		0.2616	0.2616	24.7910	10.6881	35.4791	0.0232	1.9500e-003	36.6390

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	0.0676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5059	0.0294	1.8589	3.3700e-003		0.2606	0.2606		0.2606	0.2606	24.7910	10.3970	35.1880	0.0229	1.9500e-003	36.3410
Landscaping	5.3200e-003	2.0500e-003	0.1777	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2911	0.2911	2.8000e-004	0.0000	0.2980
Total	**1.7475**	**0.0315**	**2.0366**	**3.3800e-003**		**0.2616**	**0.2616**		**0.2616**	**0.2616**	**24.7910**	**10.6881**	**35.4791**	**0.0232**	**1.9500e-003**	**36.6390**

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	0.0676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5059	0.0294	1.8589	3.3700e-003		0.2606	0.2606		0.2606	0.2606	24.7910	10.3970	35.1880	0.0229	1.9500e-003	36.3410
Landscaping	5.3200e-003	2.0500e-003	0.1777	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2911	0.2911	2.8000e-004	0.0000	0.2980
Total	**1.7475**	**0.0315**	**2.0366**	**3.3800e-003**		**0.2616**	**0.2616**		**0.2616**	**0.2616**	**24.7910**	**10.6881**	**35.4791**	**0.0232**	**1.9500e-003**	**36.6390**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.4732	0.0514	1.2900e-003	12.1412
Unmitigated	10.4732	0.0514	1.2900e-003	12.1412

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Total		**10.4732**	**0.0514**	**1.2900e-003**	**12.1412**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Total		**10.4732**	**0.0514**	**1.2900e-003**	**12.1412**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.7426	0.3394	0.0000	14.2271
Unmitigated	5.7426	0.3394	0.0000	14.2271

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	28.29	5.7426	0.3394	0.0000	14.2271
Total		**5.7426**	**0.3394**	**0.0000**	**14.2271**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	28.29	5.7426	0.3394	0.0000	14.2271
Total		**5.7426**	**0.3394**	**0.0000**	**14.2271**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B:

Biological Habitat Assessment

BIOLOGICAL RESOURCE AND HABITAT CHARACTERIZATION

FOR

Proposed Residential Housing Tract "Tucker and Highline Roads"
Tehachapi, Kern County, California
APN 417-011-15-00-2

Prepared for: LAV // Pinnacle Engineering
12418 Rosedale Highway #A
Bakersfield, CA 93312

Prepared by: MESA Biological LLC
9530 Hageman Road #B-130
Bakersfield, CA 93312

Date: March 30, 2020

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Table of Contents

Figures and Tables

Introduction (Executive Summary)

MESA Biological submits the following summary of observations during field visits pertaining to assessing the biological setting and habitat features on approximately 60 acres +/-, immediately northeast and adjacent to the intersection of Tucker and Highline Roads, generally located in south Tehachapi, Kern County, California (APN 417-011-15-00-2)(Figures 1-3).

Field survey at the Site resulted in documentation of a completely disturbed field with features and soil signatures indicative of historic agricultural use. Historic land use at the Site has converted all conditions such that no intact habitat, consistent with natural setting or plant community, was present. Vegetation within the Site limits is considered complete devoid of all woody plant species and shrubs. Herbaceous growth was consistent with annual vegetation, primarily nonnative brome grasses, horehound, tumble mustard, red-stemmed filaree, and tumbleweed.

The assessment included field surveys, database searches, and the subsequent analyses were conducted by staff experienced with regionally occurring animal and plant species, natural communities, and field survey methodologies. Conditions in the field were assessed for suitability for known regionally occurring formally protected plant and animal species; special habitat features; surface water expression, hydrophytic vegetation, or hydric soil features consistent with wetlands or other protected waters; and features considered essential or formally designated as "Critical" habitat for breeding, sheltering, roosting, or nesting of protected resources.

Assessment at the site consisted primarily of:

- Documentation of ecological setting and special or protected features (if observed)
- Generalized assessment of ecological communities
- United States Fish and Wildlife Service ("Service") – Information for Planning and Consultation (IPaC) Search
- California Department of Fish and Wildlife ("Department") – California Natural Diversity DataBase (CNDDB) Search
- California Native Plant Society (CNPS) – Rare Plant Inventory

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Site Survey Methodology

Project Description

This survey and analyses presented in this report have been prepared in preparation for submittal to lead Agency (City of Tehachapi) as application for a planned residential development and preparation of an anticipated Mitigated Negative Declaration.

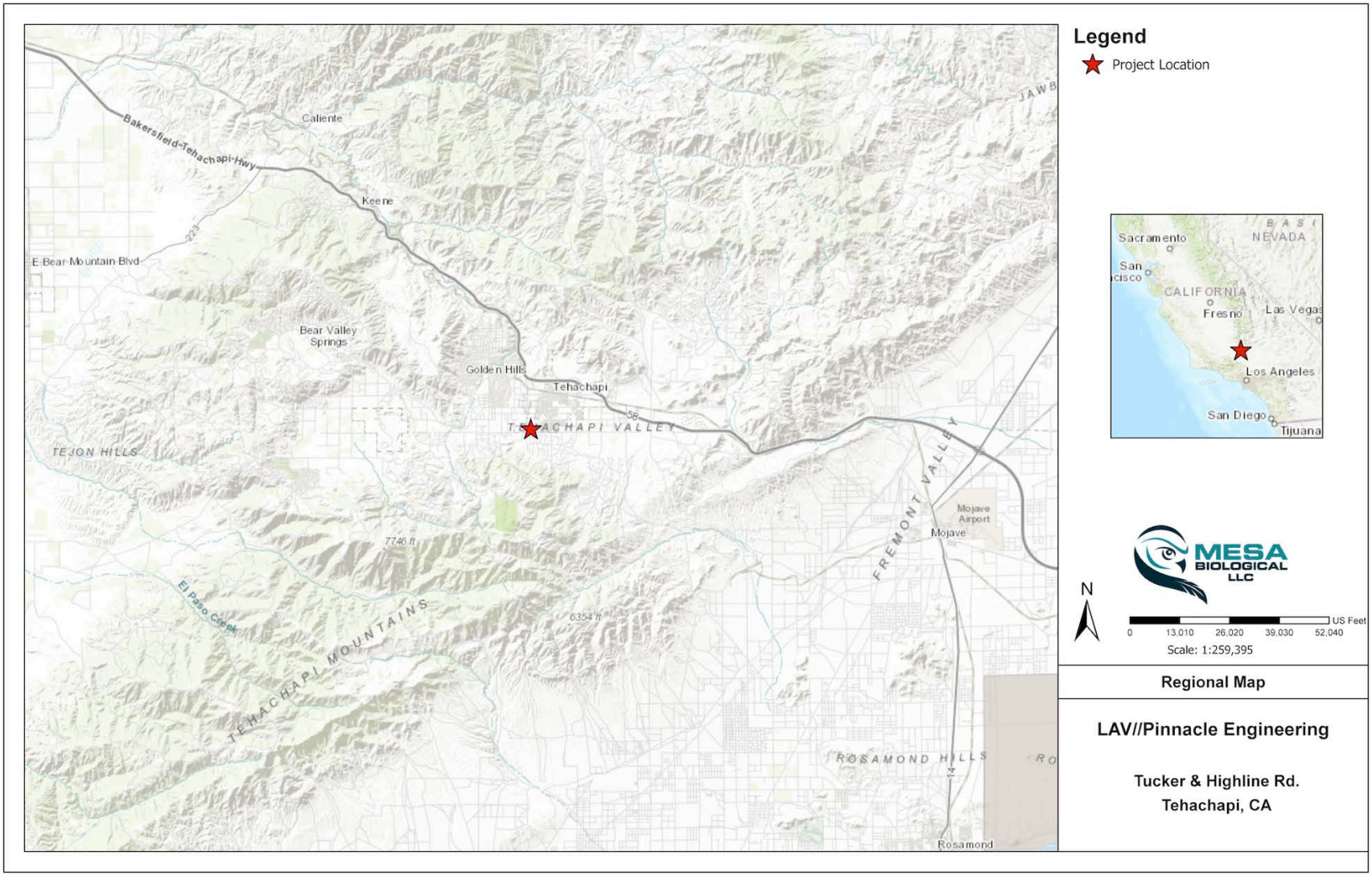

FIGURE 1. REGIONAL SITE MAP

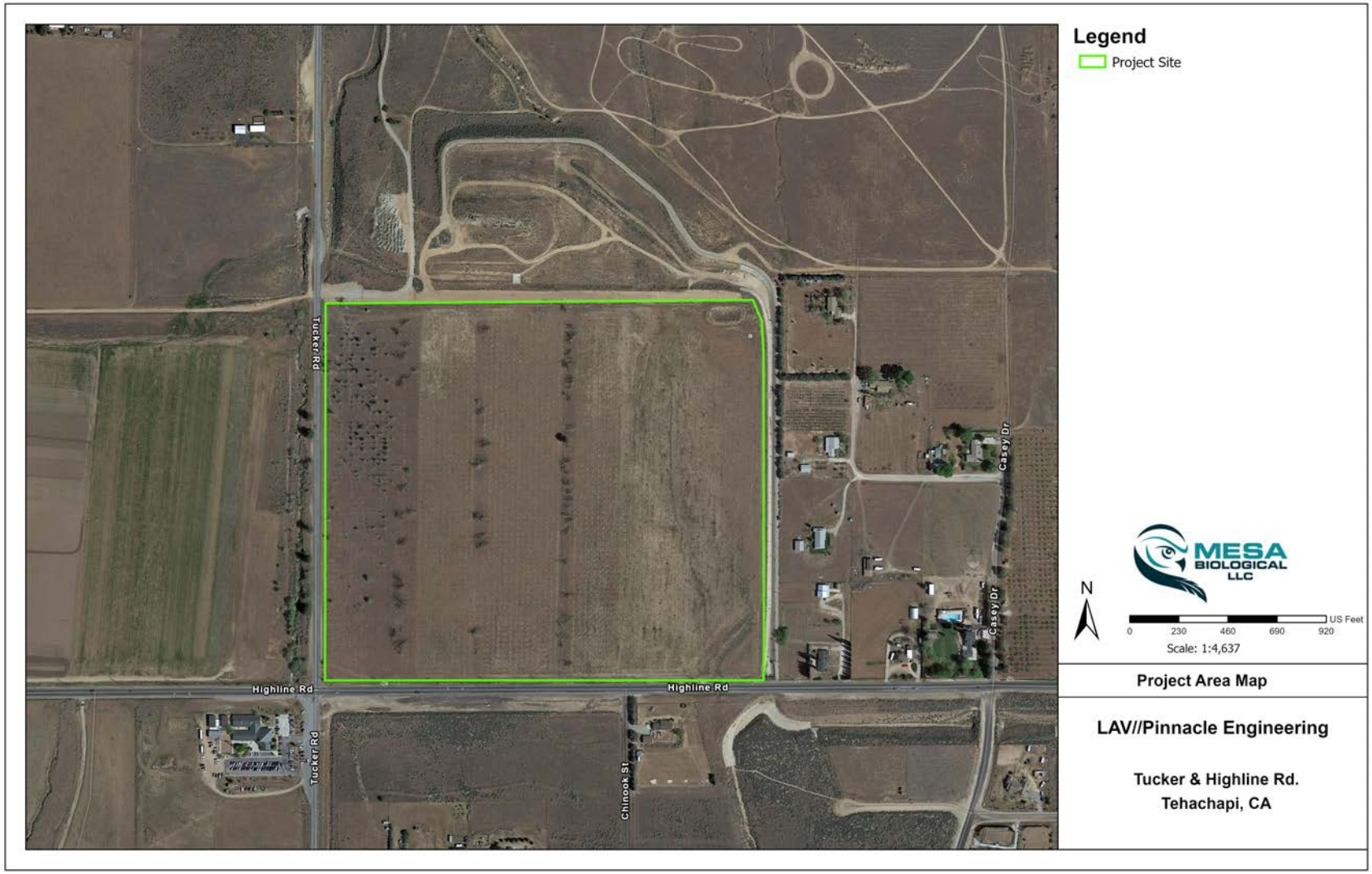

FIGURE 2. PROJECT SITE AERIAL IMAGE (COUNTY OF KERN ONLINE MAPPING 2016)

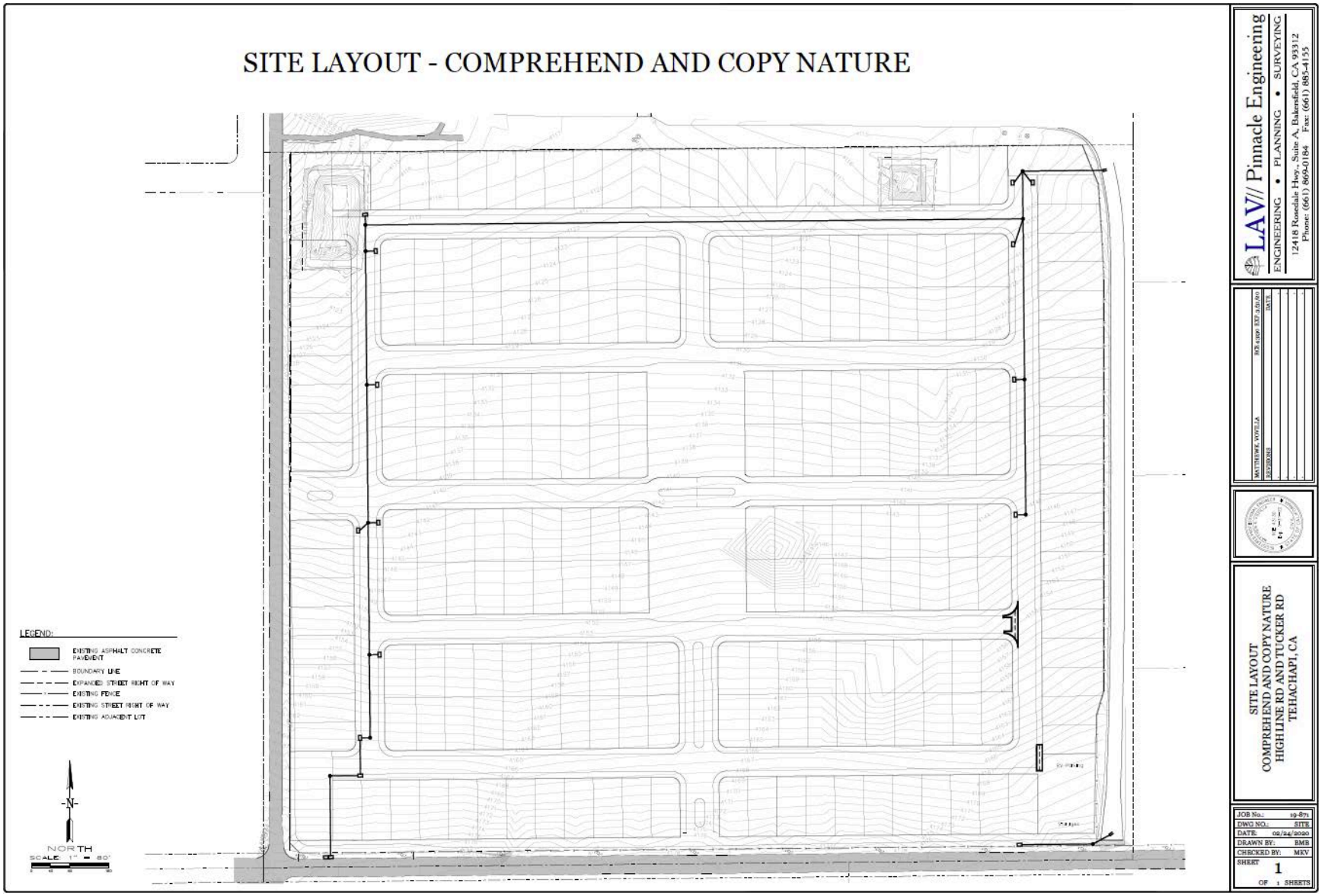

FIGURE 3. CLIENT PROVIDED SITE LAYOUT

Final development will result in construction of approximately 237 units of residential housing, associated roads, sidewalks, utilities, and open spaces.

Lands in the proposed development are located in portions of the southwest one quarter of Section 29, Township 32 South, Range 33 East, Mount Diablo Base and Meridian. All lands are contained within the United States Geological Survey 7.5 Minute Tehachapi South Quadrangle.

Permitting and Regulatory Setting

1. The Federal Endangered Species Act (FESA)

The FESA of 1973 (16 USC 1531 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register.

If a proposed Project may jeopardize listed species, Section 7 of the FESA requires consideration of those species through formal consultation with the USFWS. Federal Proposed Species are species for which a proposed listing as Threatened or Endangered under the ESA has been published in the Federal Register.

If a proposed Project may jeopardize a proposed species, Section 7 of the FESA affords consideration of those species through informal conferences with the USFWS. The USFWS defines federal Candidate species as "those taxa for which we have on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other high priority listing actions." (USFWS 2011). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in the environmental planning.

Actions may be determined as having the potential or may affect and is likely to adversely affect species or adversely modify critical habitat. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed Service action or its interrelated or interdependent actions, and the effect is not discountable, insignificant or beneficial (see definition of "is not likely to adversely affect"). In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "is likely to adversely affect." Such a determination requires formal section 7 consultation.

2. California Environmental Quality Act (CEQA) and California Endangered Species Act (CESA)

Project permitting and approval requires compliance with CEQA, the 1984 CESA, and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of those species (§§2050-2098, Fish and Game Code). The California Code

of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the California Department of Fish and Wildlife (CDFW) administers the state rare species program. The CDFW maintains lists of designated Endangered, Threatened, and Rare plant (CDFW 2016) and animal species (CDFW 2016a-b). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFW can afford interim protection to candidate species while they are being reviewed by the Fish and Wildlife Commission.

The CEQA (California Public Resource Code §§ 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the State. Section 15380 of the CEQA Guidelines clearly indicates that Species of Special Concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

Sections 15063 and 15065 of the CEQA Guidelines, which address how an impact is identified as significant, are partially relevant to the Species of Special Concern. Project-level impacts to listed (rare, Threatened, or Endangered species) species are generally considered significant, thus requiring lead agencies to prepare an Environmental Impact Report to fully analyze and evaluate the impacts. In assigning "impact significance" to populations of non-listed species, analysts usually consider factors such as population-level effects, proportion of the taxon's range affected by a project, regional effects, and impacts to habitat features.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFW Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Database's (CNDDB) working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland 1986).

CEQA specifies that significance of potential effects, resulting from projects, should be determined and stipulates that under certain conditions, project proponents may be required to prepare certain documents including a Negative Declaration (Section 2180c); Mitigated Negative Declaration (Section 21064.5); and Environmental Impact Report (Sections 21100, 21151).

The CEQA Guidelines establish the threshold for significance of impacts and effects: "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."

Effects, Impacts, and Mitigation under CEQA (AEP 2014). Effects and impacts generally refer to a physical change in the environment and the effect resulting from an activity. The effects/impacts may be direct, such as an effect produced immediately as a result of the

activity, or indirect, such as those that may occur at a later time or more distant than the immediate area of activity.

3. Take (FESA & CESA).
FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Further definition of "harm" includes "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering".

CESA Take, described in The State of California Fish and Game Code, Section 2080, defines take prohibition. Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Legal "take" may be authorized by the state and federal agencies to an otherwise lawful activity. Authorization (USFWS: Section 10 for a non-federal activity, CDFW: Section 2081) usually accompanies stipulations for minimization of impacts, mitigation, and that the action (project or activity) not jeopardize the continued existence of the species.

4. California Native Plant Society (CNPS) Ranking
Under provisions of §15380(d) of the CEQA Guidelines, the Project lead agency and CDFW, in making a determination of significance, must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFW considers plant species on List 1A (Plants presumed Extinct in California), List 1B (Plants Rare, Threatened or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) (CNPS 2014) as qualifying for legal protection under §15380(d). Species on CNPS List 3 or 4 may, but generally do not, qualify for protection under this provision.

a. California Rare Plant Rank 1A
Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere.

The plants with California Rare Plant Rank of 1A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes plants that are both presumed extinct as well as those plants that are presumed extirpated in California. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from California has been eliminated from California, but may still occur elsewhere in it's range.

All of the plants constituting the California Rare Plant Rank 1A meet the definitions of Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. Should these taxa be rediscovered, it is mandatory that they be fully considered during preparation of environmental documents relating to the California Environmental Quality Act (CEQA).

b. California Rare Plant Rank 1B
Plants Rare, Threatened, or Endangered in California and Elsewhere.

Plants with a California Rare Plant Rank of 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of taxa in the CNPS Inventory, with more than 1,000 plants assigned to this category of rarity.

All of the plants constituting the California Rare Plant Rank 1B meet the definitions of Sections 2062 and 2067 (California Endangered Species Act) of the CDFW code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

c. California Rare Plant Rank 2A
Plants Presumed Extirpated in California, But More Common Elsewhere.

The plant taxa of California Rare Plant Rank 2A are presumed extirpated because they have not been observed or documented in California for many years. This list includes only those plant taxa that are presumed extirpated in California, but more common elsewhere in their range.

d. California Rare Plant Rank 2B
Plants Rare, Threatened or Endangered in California, But More Common Elsewhere.

Except for being common beyond the boundaries of California, plants with a California Rare Plant Rank of 2B would have been ranked 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the Endangered Species Act.

With California Rare Plant Rank 2B, we recognize the importance of protecting the geographic range of widespread species. In this way, we protect the diversity of our own state's flora and help maintain evolutionary processes and genetic diversity within species. All of the plants constituting California Rare Plant Rank B2 meet the definitions of Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

5. California Fully Protected Species (Fish and Game Code 3800, 4700, 5050)
Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

6. Native Plant Protection Act (Fish and Game Code 1900 – 1913)
The intent of the Legislature and the purpose of this chapter is to preserve, protect and enhance endangered or rare native plants of this state. The Legislature finds that many

species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors.

7. The Migratory Bird Treaty Act (MBTA).
Originally passed in 1918, the MBTA implements the United States' commitment to four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The MBTA provides that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the Interior. Some regulatory exceptions apply. Take is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." The MBTA protects over 800 species of birds that occur in the U.S.

8. Bald and Golden Eagle Protection Act
This law, originally passed in 1940, provides for the protection of the bald eagle and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit(16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3).10. Lacey Act

9. Lake and Streambed Alteration (Fish and Game Code 1600)
Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW prior to beginning any activity that may do one or more of the following:
Divert or obstruct the natural flow of any river, stream, or lake;
Change the bed, channel, or bank of any river, stream, or lake;
Use material from any river, stream, or lake; or
Deposit or dispose of material into any river, stream, or lake.
Please note that "any river, stream, or lake" includes those that are dry for periods of time as well as those that flow year round. If you are not certain a particular activity requires notification, CDFW recommends you notify.

10. Clean Water Act
Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Proposed activities are regulated through a permit review process. An individual permit is required for potentially significant impacts.

Field Survey

Field surveys were conducted by biological staff experienced and knowledgeable with regionally occurring animal and plant species, natural communities, and field survey methodologies to assess a field setting for presence of biological resources.

Surveys at the Site were conducted twice, on December 20, 2019 and again on February 20, 2020. Surveys were biological surveys were considered reconnaissance-level. No formal protocol surveys were conducted.

Surveys documented natural conditions, vegetation communities, sign or presence of sensitive habitats, and documentation of land use and pre-existing disturbance. Pedestrian, vehicle, and focused searches were intuitively controlled to ensure thorough biological documentation of the Site and surrounding lands.

Database and Literature Review

In preparation for Site visits, map sets, historic and recent areal imagery and online databases were also consulted and included:

- United State Fish and Wildlife Service ("Service") – Information for Planning and Consultation (IPaC) Search
- California Department of Fish and Wildlife ("Department") – California Natural Diversity DataBase (CNDDB) Search
- California Native Plant Society (CNPS) – Rare Plant Inventory

The IPaC, CNDDB, and CNPS rare inventory searches contained the entire Site and the respective United State Geological Survey 7.5 Minute Quadrangle (Tehachapi South) map and surrounding eight quadangles (Keene, Tehachapi North, Tehachapi Northeast, Monolith, Willow Springs, Tylerhorse Canyon, Liebre Twins, and Cummings Mountain).

Survey Results

Site Setting

The Site exists generally in southern Tehachapi adjacent to the northeast corner of the intersection of Tucker and Highline Roads. The land within the Site limits is considered a vacant lot, fallow, and completely disturbed and converted from natural conditions from edge to edge. Soils and terrain indicate prolonged agricultural use including sign of use for row-crops and potentially limited orchards. Two shallow-bermed agricultural ponds were identified and were completely dry at the time of survey (Figures 3 – 9).

Habitat Assessment

The ecological conditions were consistent with fallow field, dominated by nonnative vegetation. No intact habitat was present. No native lands were present.

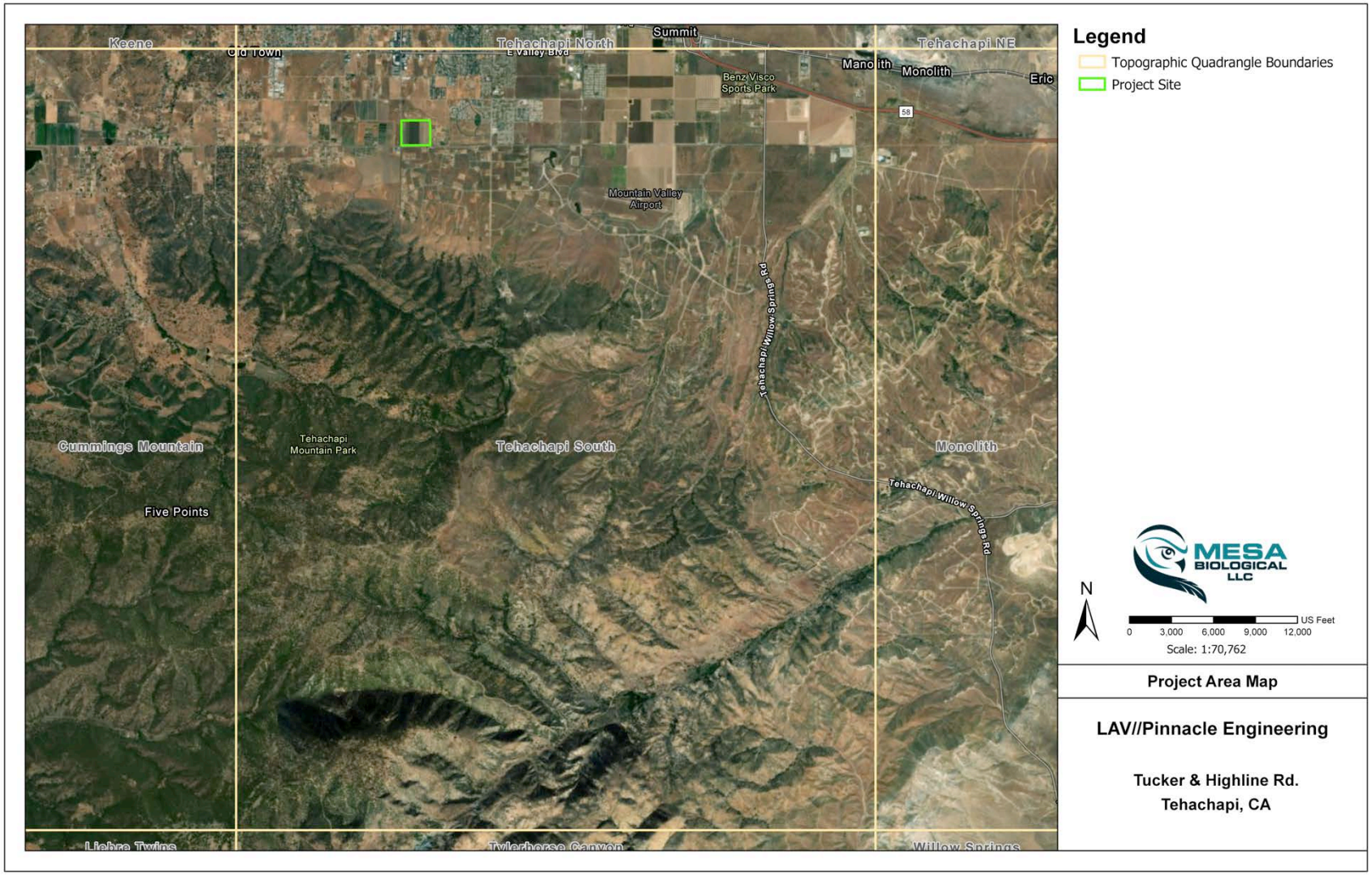

FIGURE 4. USGS 7.5 MINUTE QUADRANGLE BOUNDARIES

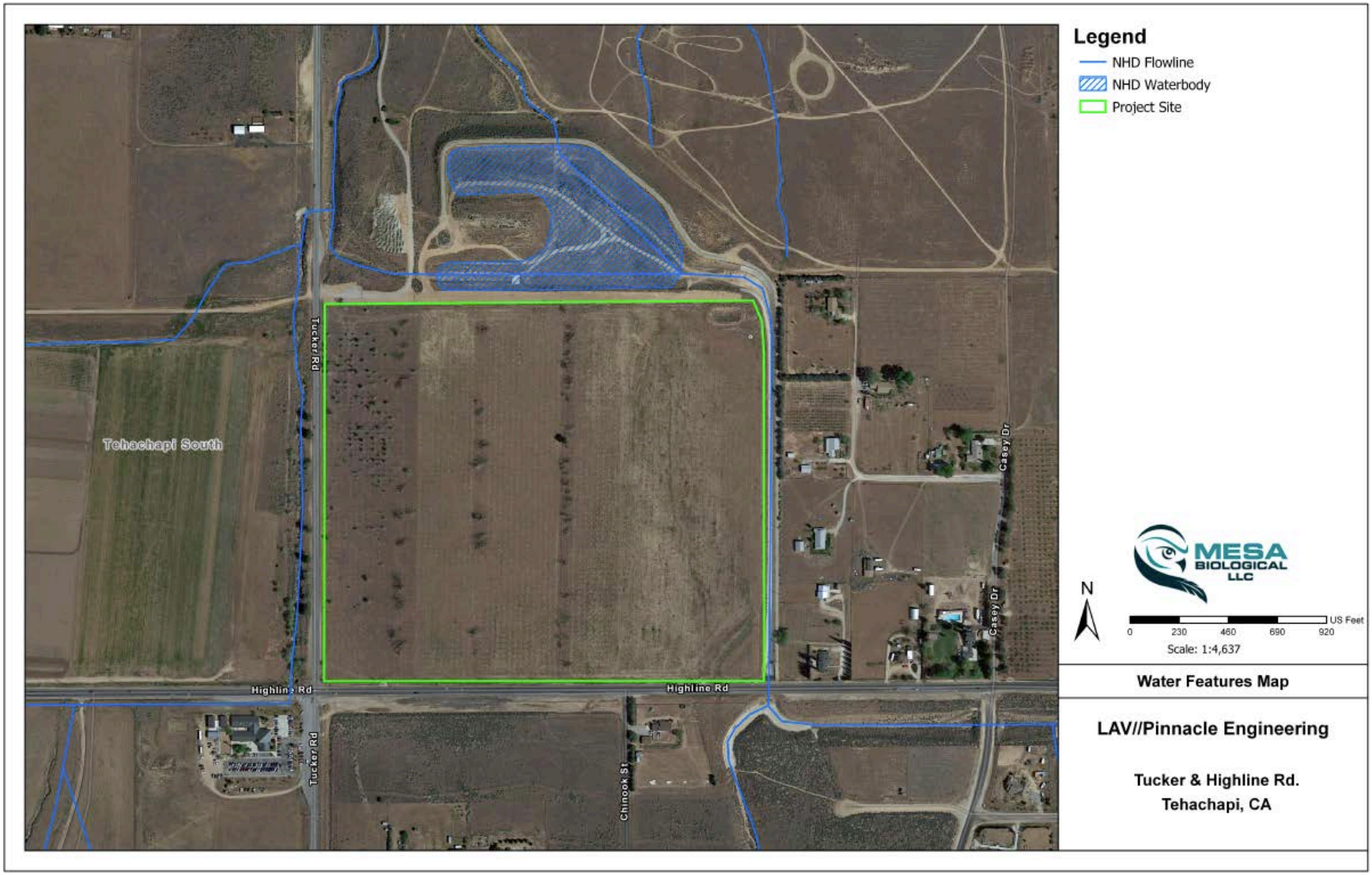

FIGURE 5. MAPPED WATER FEATURES NEAR THE SITE (COUNTY OF KERN ONLINE MAPPING 2016)

FIGURE 6. SITE PANORAMIC PHOTOGRAPH FROM SOUTHEAST CORNER ORIENTED NORTHWEST

FIGURE 7. SITE PANORAMIC PHOTOGRAPH FROM NORTHEAST CORNER ORIENTED SOUTHWEST

FIGURE 8. SITE PANORAMIC PHOTOGRAPH FROM NORTHWEST CORNER ORIENTED SOUTHEAST

FIGURE 9. SITE PANORAMIC PHOTOGRAPH FROM SOUTHWEST CORNER ORIENTED NORTHEAST

Botanical
Vegetation within the Site limits is considered complete devoid of all woody shrub species. There were several small deciduous trees, appearing agricultural in nature, and likely a trial planting of orchard crop species.

Herbaceous growth consisted primarily of nonnative annual vegetation including non-native grasses (*Bromus* spp.), horehound (*Marrubium vulgare*), tumbleweed (*Salsola tragus*), red-stemmed filaree (*Erodium cicutarium*) and rocket- and/or tumble-mustard (*Sisymbrium* spp). Native plants include rubber rabbitbrush (*Ericameria nauseosa*) and jimsonweed (*Datura wrightii*). Evidence of previous row crop farming is present.

Two shallow artificial ponds were present along the northern limits and completely dry at the time of survey. The bermed edges contained vegetation consistent with upland growth conditions.

Wildlife
Terrestrial wildlife at the Site was considered generally absent throughout much of the Site. Sign of burrowing mammals was restricted to sign of characteristic burrows of pocket gopher (*Thomomys bottae*), ground vole tunnels (*Microtus californicus*), California ground squirrel (*Spermophilis beecheyi*), and direct observation of black-tailed jack rabbit (*Lepus californicus*).

Observed birds on Site and in adjacent lands were restricted to common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), Brewer's blackbird (*Euphagus cyanocephalus*), white-crowned sparrow (*Zonotrichia leucophrys*), northern mockingbird (*Mimus polyglottos*), and turkey vulture (*Cathartes aura*). Tree nesting is considered very limited onsite; however, offsite parcels contain suitable nesting structure. No ground nesting was observed during Site visits.

Protected Animals, Plants, and Sensitive Habitat Features

Protected Species
Animals
No protected animals were observed on Site and no sign was present which would indicate use or occupation, recent or historical, by any protected animal taxa. The combined effects of disturbance at the Site, soil turnover, likely application of rodenticides consistent with agricultural sites, and removal of all native habitat features and trees reduces the potential for occupation of formally listed or administratively designated protected species.

While no sign of use or occupation was present, certain species may become present at the Site in the future and use lands in the Site for foraging or potential habitation (Table 1). As such, recommendations are included relative to those species whose potential future presence is considered reasonable.

Rare Plants
Natural conditions at the Site have been substantially altered and post-settlement conditions have likely eliminated the required habitat components, soil conditions, and hydrological regimes required for most native plants occurring in the vicinity of the Site (Table 1). Herbicide application and competitive exclusion by invasive species further reduce the potential for occupation by listed rare plant taxa. It should also be considered that adjacent parcels are unlikely to represent suitable sources for future seeding and repopulation of the Site. Botanical surveys during appropriate flowering periods are unlikely to produce positive results for rare taxa.

Nesting and Avian Resources
The size and condition of the trees on the Site represent limited nesting structure and generally not suitable for many of the protected avian species in the region.

No ground nesting was observed during Site visits.

Lands surrounding the Site contain habitat suitable for nesting and roosting of certain listed birds, including raptors and other species with broad ranging foraging habits.

As the Site may be used for foraging and ground nesting habitat is present, recommendations are included for species whose future presence, including periodic foraging or ground nesting (Table 1).

Federally Protected Wetlands (Section 404)
No USACE Preliminary Jurisdictional Delineation was conducted. No conditions were present which would indicate presence of defined wetlands. As such, no hydrological signatures or vegetation consistent with wetlands were identified. Further, a review the of the national wetland inventory did not produce evidence of potential wetlands at the Site.

A concrete line water diversion canal exists east of the project edge. The immediate water source is likely water runoff from offsite higher elevation drainages. Water is diverted to offsite lands, generally north of the Site limits.

Construction of the project is unlikely to interfere with mapped water features.

Interference with Movement or Migration Patterns, or Interruption of Wildlife Corridors and Nursery Sites
The Site contains no features that would indicate use by any species as a nursery. As the Site is isolated from other natural areas, it is unlikely that the Site serves an important corridor for animals moving locally, regionally, or in broader migrations. Migratory species may utilize the Site; however, the usage is likely transient. The Site does not possess any characteristics that would indicate an important stopover point for migratory species including raptors or waterfowl.

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
Completion of the land conversion activities at the Site will likely necessitate lead agency preparation of an environmental document for agency review. As such, compliance and adherence with local policies and ordinances protecting wildlife and resources is a reasonably anticipated outcome.

Habitat Conservation Plan, Natural Community Conservation Plan, Other Approved Conservation Plans
Land conversion activities at the Site are not presently anticipated to conflict with any HCP or NCCP. Coordination with lead agency staff and regulators will determine whether future inclusion is appropriate or required.

CDFW Riparian Areas and Wetlands
No riparian features, including dry or ephemeral drainages exist on Site. As such, conditions at the Site are considered entirely upland in nature.

Recommendations

Final adoption of any take avoidance and mitigation and monitoring measures will be determined by the Lead Agency, and require further CEQA review. Additional coordination with state and federal wildlife regulators may be appropriate. It should be noted that "Take" authority requires formal agency consultation and until clarification is provided, any activities that may result in Take at the Site should be curtailed and avoided. Early coordination is recommended to assess Agency evaluation of proposed activities and potential impacts to listed species.

The following recommendations are presented to assist Lead Agency staff in preparing measures to prevent Take and mitigate for impacts to natural resources. Resource Agency coordination, including Take permit application, may be required if conditions become present at the Site where Take (of any form) cannot be completely avoided. If applicable, in the absence of Take authority and required respective protective measures, failure to formally consult agency regulators and comply with CESA or FESA could constitute negligence and establish grounds for exceeding civil penalties under the law.

Measures recommended for consideration:
1. Any sign of occupation in the future should be followed by immediate contact with USFWS and CDFW to gain technical assistance as well as assess if Take authority application needs to be acquired. Work and development activities may require cessation depending on the conditions related to species presence.

2. Prior to implementing any work activities, preconstruction clearance surveys should be conducted to ensure that conditions have not changed and that the Site has not become occupied by listed species.

3. Burrowing owl and potentially occurring nesting native and migratory birds should be anticipated to be present at various times onsite. Prior to soil disturbance or earth-work, burrowing owl search protocols should be consulted to assess the Site for occupation and to determine if avoidance measures should be implemented for avoidance. Nest searches should be conducted and protocols consulted for avoidance.

4. Adoption of best management practices for construction activities and land development in potentially occupied settings. Included the BMP's should be weekly removal of all food-related trash from the Site and storage of any food-related trash in closed, raven-proof, containers.

5. Implementation of elevated trash and waste management practices to include daily sweeps and pickup of all microtrash, prior to starting work and prior to staff departing from the Site. All work areas should be policed.

5. Any adopted avoidance measures should be followed up with training of all Site personnel associated with ground disturbing activities.

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TABLE 1. CONSOLIDATED SPECIES LIST. FEDERAL AND/OR STATE PROTECTED STATUS

Common Name Scientific Name	**Federal Status***	**State Status****	**General and Micro-habitat†**	**Potential to Occur and Rationale**
Plants				
Mt. Pinos onion *Allium howellii var. clokeyi*	None	1B.3	Meadows and seeps (edges), pinyon and juniper woodland, Great Basin scrub. 1,300-1,850 m.	**Absent**. No suitable habitat present
Spanish Needle onion *Allium shevockii*	None	1B.3	Upper montane coniferous forests, Pinyon and juniper woodlands, rocky outcrops. 850-2,500 m.	**Absent**. No suitable habitat present
Horn's milk-vetch *Astragalus hornii var. hornii*	None	1B.1	Meadows and seeps, lake margins, Playas, alkaline soils. 60-850 m.	**Absent**. No suitable habitat present
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	None	1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 1,000-2,390 m.	**Absent**. No suitable habitat present
Alkali mariposa-lily *Calochortus striatus*	None	1B.2	Moist creosote-bush scrub, Chenopod scrub, Chaparral, alkaline meadows and seeps. 70-1,595 m.	**Absent**. No suitable habitat present
Calico monkeyflower *Diplacus pictus*	None	1B.2	Broadleafed upland forest, cismontane woodland. In bare ground around gooseberry bushes or around granite rock outcrops. 100-1,430 m.	**Absent**. No suitable habitat present
Kern buckwheat *Eriogonum kennedyi var. pinicola*	None	1B.1	Chaparrals, Piyon and juniper woodlands, clay soils. 1,340-1,950 m.	**Absent**. No suitable habitat present
Fort Tejon woolly sunflower *Eriophyllum lanatum var. hallii*	None	1B.1	Cismontane woodlands and chapparals. 1,065-1,500 m.	**Absent**. No suitable habitat present
Tejon poppy *Eschscholzia lemmonii ssp. kernensis*	None	1B.1	Chenopod scrublands and Valley and foothill grasslands; open areas. 160-1,000 m.	**Absent**. No suitable habitat present

Greenhorn fritillary *Fritillaria brandegeei*	None	1B.3	Lower montane coniferous forests, around granite rock outcrops. 1,330-2,100 m.	**Absent**. No suitable habitat present
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	None	1B.1	Playas, marshes and swampy areas, common around vernal pools. 1-1,220 m.	**Absent**. No suitable habitat present
Pale-yellow layia *Layia heterotricha*	None	1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Alkaline or clay soils; open areas. 90-1,800 m.	**Absent**. No suitable habitat present
Madera leptosiphon *Leptosiphon serrulatus*	None	1B.2	Lower montane coniferous forests, cismontane woodlands. 300-1,300 m.	**Absent**. No suitable habitat present
Sagebrush loeflingia *Loeflingia squarrosa var. artemisiarum*	None	2B.2	Great Basin scrublands, Sonoran Desert scrublands, desert dunes; sandy soils. 700-1,615 m.	**Absent**. No suitable habitat present
Peirson's lupine *Lupinus peirsonii*	None	1B.3	Joshua tree woodland, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Rocky or gravelly soils. 1,000-2,500 m.	**Absent**. No suitable habitat present
Tehachapi monardella *Monardella linoides ssp. Oblonga*	None	1B.3	Lower montane coniferous forest, upper montane coniferous forest, pinyon-juniper woodland. On dry slopes of yellow pine forest, decomposed granitic soils; in roadside disturbed areas 900-2,470 m.	**Absent**. No suitable habitat present
Aparejo grass *Muhlenbergia utilis*	None	2B.2	Moist areas along streams and ponds. 250-1,000 m.	**Absent**. No suitable habitat present
Baja navarretia *Navarretia peninsularis*	None	1B.2	Meadows and seeps, lower montane coniferous forests, chaparral; open areas, pinyon and juniper woodlands. Mesic areas. 1,500-2,300 m.	**Absent**. No suitable habitat present
Piute Mountains navarretia *Navarretia setiloba*	None	1B.1	Cismontane woodlands, Pinyon and juniper woodlands, and Valley and foothill grasslands; open areas. Clay and gravelly loam soils. 285-2,100 m.	**Absent**. No suitable habitat present
Spjut's bristle moss *Orthotrichum spjutii*	None	1B.3	Lower montane coniferous forests, pinyon and juniper woodlands, subalpine coniferous forests and upper montane coniferous forests. Found near granite outcrops. 2,100-2,400 m.	**Absent**. No suitable habitat present
Robbins' nemacladus *Nemacladus secundiflorus var. robbinsii*	None	1B.2	Open areas, valley and foothill grasslands, chaparrals. 350-1,700 m.	**Absent**. No suitable habitat present
Bakersfield cactus	Endangered	E, 1B.1	Cismontane woodlands, valley and foothill grasslands, chenopod	**Absent**. No suitable habitat present

Opuntia basilaris var. treleasei			scrublands. Sandy or gravelly soils. 120-1,450 m.	
Latimer's woodland-gilia *Saltugilia latimerid*	None	1B.2	Mojavean desert scrub, pinyon and juniper woodlands, chaparrals. Found near granite outcrops, in rocky or sandy soils; washes. 400-1,900 m.	**Absent**. No suitable habitat present
Piute Mountains jewelflower *Streptanthus cordatus var. piutensis*	None	1B.2	Broadleafed upland forests, closed-cone coniferous forests, pinyon and juniper woodlands. Clay or metamorphic soils. 1,095-1,825 m.	**Absent**. No suitable habitat present
Piute Mountains triteleia *Triteleia piutensis*	None	1B.1	Pinyon and juniper woodlands. Open areas with fine volcanic soil, scattered boulders or heavy clay soil with volcanic hardpan. 1,585-1,655 m.	**Absent**. No suitable habitat present
Grey-leaved violet *Viola pinetorum ssp. grisea*	None	1B.2	Subalpine coniferous forest, upper montane coniferous forest, meadows and seeps. Dry mountain peaks and slopes. 1,500-3,400 m.	**Absent**. No suitable habitat present
Birds				
Tricolored blackbird *Agelaius tricolor*	None	T	Cattail marshes, marshy meadows, and rangelands.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Golden eagle *Aquila chrysaetos*	FP	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliffs, rocky outcrops and large trees provide nesting habitat.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Long-eared owl *Asio otus*	None	SSC	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Burrowing owl *Athene cunicularia*	None	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**Moderate.** Suitable nesting habitat present. May occasionally forage.
Swainson's hawk *Buteo swainsoni*	None	T	The range of the Swanson Hawk overlaps the Mojave Desert but is mostly observed near agricultural lands where foraging for small rodents is optimal. Critical habitat features include open areas suitable for foraging. Nests are usually constructed in lone trees or near riparian systems.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Mountain plover *Charadrius montanus*	None	SSC	Mountain Plovers are generally found in open, flat, dry tablelands with low, sparse vegetation. Nests are simple scrapes in the ground, which males begin forming soon after their arrival in breeding areas. After eggs are laid, lichen grass roots, leaves and dried chips of cow	**Unlikely.** No suitable nesting habitat. May occasionally forage.

			manure are added until eggs are about half buried.	
Northern harrier *Circus cyaneus*	None	SSC	Open habitats including freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands, sagebrush flats, desert sinks, fallow fields and agricultural lands.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
American peregrine falcon *Falco peregrinus anatum*	DL	DL	Open habitats near water with granite outcrops, cliffs, steep banks, and ledges for nesting sites. Abundant food source is required (seabirds, waterfowl, pigeons).	**Unlikely.** No suitable nesting habitat. May occasionally forage.
California condor *Gymnogyps californianus*	Endangered	E	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Loggerhead shrike *Lanius ludovicianus*	None	SSC	Shrublands, open woodlands with grass cover and bare ground. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	**Moderate.** No suitable nesting habitat. Perches and forage present primarily along fenced margins and where utility poles offer perches.
Yellow warbler *Setophaga petechia*	None	SSC	Usually found in riparian deciduous habitats in summer: cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. In migration, visits woodland, forest, and shrub habitats.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
California Spotted Owl *Strix occidentalis occidentalis*	None	SSC	Mixed conifer forests, montane hardwood-conifer, and montane hardwood forests at mid elevations.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Le Conte's thrasher *Toxostoma lecontei*	None	SSC	Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs. Uses scattered desert shrubs and cactus for cover; frequently saltbush and cholla.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	None	SSC	Nests, roosts, and does much foraging in fresh emergent wetland. Also feeds along shorelines and in nearby open fields, preferably on moist ground.	**Unlikely.** No suitable nesting habitat. May occasionally forage.
Mammals				
Western red bat *Lasiurus blossevillii*	None	SSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	**Unlikely.** No suitable roosting habitat. May occasionally forage.

Tulare grasshopper mouse *Onychomys torridus tularensis*	None	SSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Diet almost exclusively composed of arthropods, therefore needs abundant supply of insects.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
Tehachapi pocket mouse *Perognathus alticola inexpectatus*	None	SSC	Arid annual grassland and desert shrub communities, but also taken in fallow grain field and in Russian thistle. Burrows for cover and nesting. Estivates and hibernates during extreme weather. Forages on open ground and under shrubs.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
American badger *Taxidea taxus*	None	SSC	Most abundant in drier open stages of most shrub, forest, and herbacesous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
Reptiles / Amphibians				
Northern California legless lizard *Anniella pulchra*	None	SSC	The Northern California legless lizard's geographical range includes the Mojave area. Critical habitat features include moisture and loose soils and leaf litter for foraging and burrowing.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
California legless lizard *Anniella spp.*	None	SSC	Common in several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub types. 0-1,800 m.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
Desert tortoise *Gopherus agassizii*	T	T	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with annual wildflower blooms preferred.	**Unlikely.** Species extant range limited to desert regions east of the foothill range to the south and east of the Site.
Coast horned lizard *Phrynosoma blainvillii*	None	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**Unlikely.** Very limited portions of habitat where soil turnover is less intensive.
Tehachapi slender salamander *Batrachoseps stebbinsi*	None	T	Prefers north-facing talus slopes in valley-foothill hardwood-conifer and valley-foothill riparian habitats Critical habitat features include abundant supply of insects and moist underground niches. 760-1,500 m.	**Unlikely**. No suitable habitat present
Foothill yellow-legged frog *Rana boylii*	None	SSC	Found in or near rocky streams in a variety of habitats including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types.	**Unlikely**. No suitable habitat present

Invertebrate			
Crotch bumble bee *Bombus crotchii*	None	CE	**Absent**. No suitable habitat present

Federal status designations: E (Endangered) and T (Threatened)
State status designations: E (Endangered) and T (Threatened); SSC = Species of Special Concern; FP = Fully Protected; CE (Candidate Endangered

Appendix C:

Cultural Resource Assessment

PHASE I CULTURAL RESOURCES SURVEY, APN 417-011-14 &15, TEHACHAPI, KERN COUNTY, CALIFORNIA

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February 2020

PN 34170.00

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MANAGEMENT SUMMARY

An intensive Phase I cultural resources survey was conducted for APN 417-011-14&15, Kern County, California. This study was conducted by ASM Affiliates, Inc., with David S. Whitley, Ph.D., RPA, serving as principal investigator. Background studies and fieldwork for the survey were completed in December 2019 - February 2020. The study was undertaken to assist with California Environmental Quality Act (CEQA) compliance.

A records search of site files and maps was completed at the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield. A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was also conducted. These investigations determined that the study area had not been previously surveyed in its entirety and that no sacred or archaeological sites or traditional cultural places had been identified within or adjacent to the study area.

The Phase I survey fieldwork was conducted in February 2020, with a 15-meter (m) wide survey transect within the parcel, which is proposed for residential development. The total study area surveyed was approximately 57-acres in size.

No historical resources or historic properties were discovered within the study area, and the potential for buried subsurface remains is low. Based on these findings, the construction of the proposed project does not have the potential to result in adverse impacts to significant historical resources or properties, and no additional cultural resource studies are recommended. In the unlikely event that cultural resources are identified during the construction of the project, work should be halted within a 100-foot radius of the find. It is recommended that a qualified archaeologist be contacted to evaluate the newly discovered resource. Further mitigation, including subsurface testing, may be required to determine the discovery's eligibility for California Register of Historical Resources (CRHR).

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc. was retained by Provost & Pritchard Consulting Group to conduct an intensive Phase I cultural resources survey for the APN 417-011-14&15, Kern County, California. The purpose of this investigation was to assist with compliance with the California Environmental Quality Act (CEQA).

This current investigation included:

- A background records search and literature review to determine if any known archaeological sites were present in the project zone and/or whether the study area had been previously and systematically studied by archaeologists;
- A search of the NAHC *Sacred Lands File* to determine if any traditional cultural places or cultural landscapes have been identified within the area;
- An on-foot, intensive inventory of the study area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

This study was conducted by ASM Affiliates, Inc., of Tehachapi, California, December 2019 – February 2020. David S. Whitley, Ph.D., RPA, served as principal investigator and ASM Associate Archaeologist, Robert Azpitarte, B.A., conducted the fieldwork.

This manuscript constitutes a report on the Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with a summary and recommendations for the study area.

Appendix A, results of the records search, contains information that is sensitive and that, by law, is confidential.

1.1 STUDY AREA LOCATION

The study area, consisting of the boundaries of APN 417-011-14&15, is located along the southern city limits of the City of Tehachapi, near the northern foothills of the Tehachapi Mountains, in Kern County, California (Figure 1). This places it within the Tehachapi Valley, an upland valley within the Tehachapi Mountains, at an elevation of approximately 4150 feet (ft) above mean sea level (amsl). The Tehachapi Mountains, with elevations ranging from 4,000 to 8,000-ft amsl, are part of the Transverse Ranges of California that run southwest to northeast for approximately 40 miles (mi). They separate the low-lying San Joaquin Valley on the northwest from the elevated Mojave Desert to the southeast. The Tehachapi Mountains meet with the southern Sierra Nevada at their north end, the San Emigdio Mountains on the west.

APN 417-011-14&15 is located at the northeast corner of Tucker and Highline roads. More specifically, it is in Section 29; Township 32 South, Range 33 East, Mount Diablo Base and Meridian. APN 417-011-14&15 is approximately 57-acres of undeveloped private land.

1.2 PROJECT DESCRIPTION

The proposed project will involve tract development for approximately 237 housing units on currently vacant land. It is currently bordered by undeveloped private properties on three sides. Paved roads are present on the west, south and east boundaries, with a housing development to the east and single-family residences and a church south of Highline Road. The total combined area of disturbance would encompass approximately 57-acres, which includes all access roads, staging areas, and development construction.

1.3 REGULATORY CONTEXT

1.3.1 CEQA

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

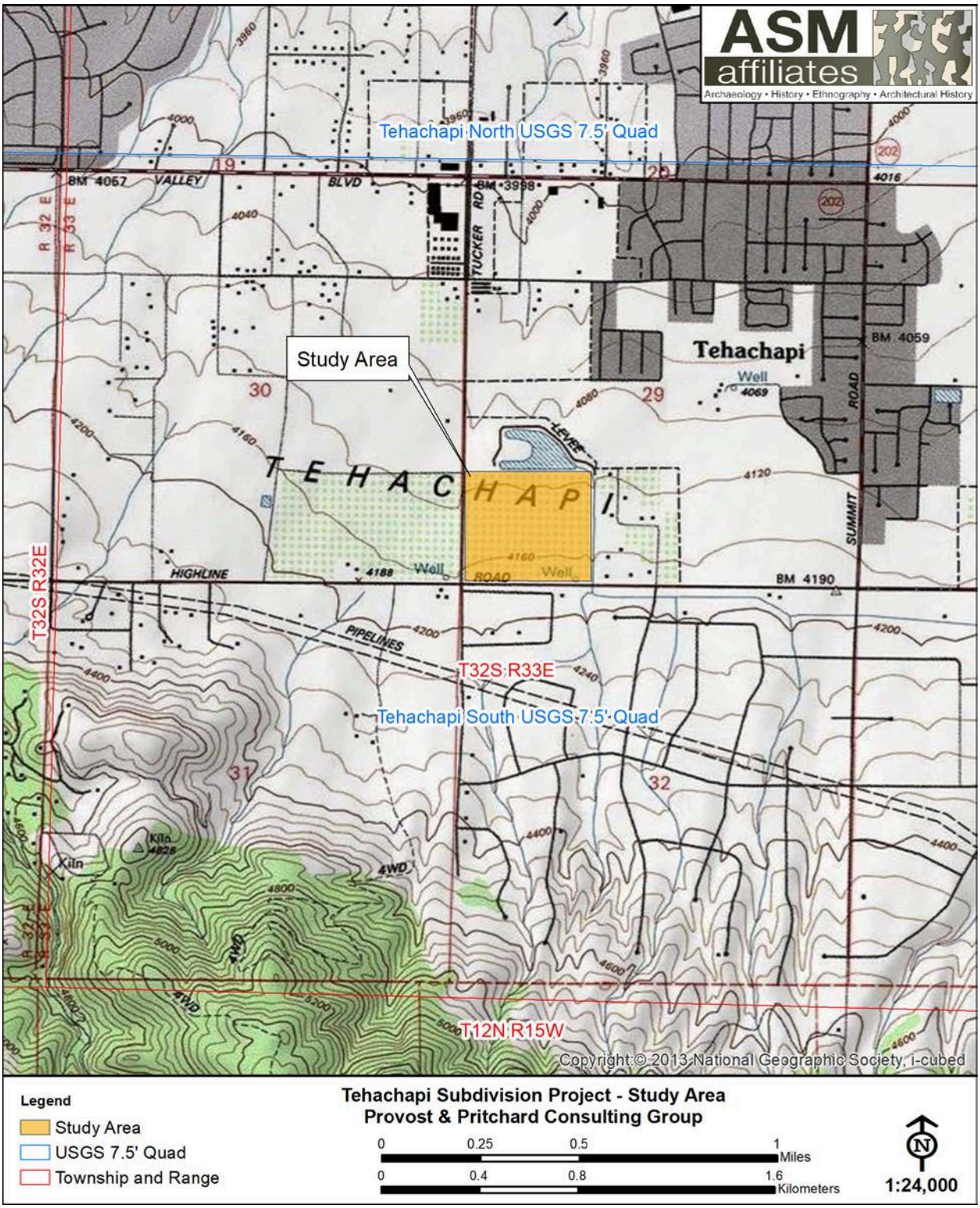

Figure 1. Location of the APN 417-011-15 Cultural Resources Survey Project study area, Kern County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND

APN 417-011-14&15 consists of undeveloped, flat, former farmland. The Tehachapi Valley falls within the California interior chaparral and woodlands sub-ecoregion, supporting grasslands, California oak woodlands, and oak savanna (Schoenherr 1992:270). Although the study area likely would have supported an oak woodland in the past, it currently supports a low cover, moderate density of various non-native grasses and other introduced species.

Figure 2. APN 417-011-14&15 study area, looking south-east.

2.2 ETHNOGRAPHIC BACKGROUND

The APN 417-011-14&15 study area falls within the ethnographic territory of the Mountain Kawaiisu, as opposed to the Desert Kawaiisu who occupied desert areas east of Tehachapi. While Zigmond (1986) places the study area within the core tribal area for the Kawaiisu with the range of seasonal trips covering significant portions of the Mojave Desert, other research has suggested that Kawaiisu intermarried with Panamint Shoshone and thus had permanent groups in desert areas. The Mountain Kawaiisu would winter in the Tehachapi area, generally in small hamlets of around six houses (Garfinkel et al. 2011; Kroeber 1925).

The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin. More specifically, it is a dialectical variant of Southern Paiute. The vicinity of the study area has been suggested as the place from which Southern Numic, and perhaps even Proto-Numic, dispersed. While the Kawaiisu do not have migration tales, the theory, if true, indicates they have occupied the vicinity of the study area for at least 2,000 years (Zigmond 1986).

The Kawaiisu were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability as well as precise geographical/environmental location. In the higher montane portions of their region (e.g., towards the Tehachapis), acorn-bearing oak and pinyon nuts were staples. In the lower lying more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits, and rodents.

Kawaiisu social and political organization was based on the family group. Related family groups would generally live in close proximity to one another, forming informal bands and cooperating in subsistence efforts. Chiefs, or headmen, were recognized but had no real authority. Rather, it was their wealth that afforded them positions of perceived authority (Garfinkel and Williams 2011; Kroeber 1925).

Religious beliefs and practices were based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who exercised an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1992, 1996, 1998b, 1998c, 2000).

There are multiple known historical villages in the general Tehachapi area. Two villages, *Tehechita* and *Teheshti-va'a-di*, were located along Brite Creek, northwest of the study area. The name Tehachapi is derived from the village name *Tehechita*. At the eastern end of the Tehachapi Valley, in the Sand Canyon area, were the villages of *Ma'a'puts* and *Tomo Kahni*. *Tomo Kahni* is perhaps the most well-known of these villages and is currently protected within Tomo Kahni State Historic Park (Garfinkel et al. 2011). These locations are miles distant from the APN 417-011-15 study area.

2.3 ARCHAEOLOGICAL BACKGROUND

Though no complete prehistory specific to the study area exists, nearby regions have received extensive study and can serve as proxy data. The study area is in close proximity to both the southern Sierra Nevada and the Mojave Desert and though the regions differ in geography and

tribal affiliation, the prehistories of both are broadly similar, with the exception of the earliest period. Pleistocene and early Holocene sites have, to date, been found in the Mojave Desert but not the Sierra. Overall, the prehistory of the Mojave Desert has been more greatly studied and is better known than that of the Sierra; indeed, our current cultural historical framework for this portion of the Sierra is simply a variant of the Mojave Desert chronology. Existing information on the prehistory of the Mojave Desert is therefore emphasized in the following.

Pre-Clovis (earlier than 12,000 YBP):

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first human occupation. Although there is still much debate and occasional controversy, a variety of lines of evidence, including ancient DNA studies, indicates that humans were in North American 15,000 – 20,000 years ago. At this point there is relatively little that can be said about this occupation beyond the simple argument for its presence. Until additional evidence is presented, we will not be able to determine whether Pre-Clovis peoples in this portion of North America were sedentary or mobile, or big-game hunters versus more generalized foragers.

Paleoindian (12,000 - 9000 YBP):

Although the initial occupation of the continent is controversial and uncertain, there is widespread agreement on the subsequent Paleoindian period, which is typically characterized as involving mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the fluted, collaterally-flaked and basally-thinned and -ground Clovis and Folsom spear points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period, some of which are stemmed. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, *Bison antiquus*, and the North American horse. Aside from this so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America though it is far from proven in all parts of the continent. Recent evidence indicates that the earlier portions of the Paleoindian period – the Younger Dryas – comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Paleoclimatic reconstruction in the vicinity of the study area indicates that a drought also occurred in this specific region (Ramirez and Bryson 1996), further supporting the notion that all Mojave Desert populations – human and animal – existed in stressed conditions at that time.

Very substantial although sometimes overlooked evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, east of the study area; on the shores of Pleistocene Lake China and within the Coso Range, *per se*; in Fort Irwin, northeast of Barstow; in the El Paso Mountains, a short distance northeast of the study area; and in the Tehachapi Mountains, further to the northwest (e.g., Glennan 1971, 1987; Davis 1978; Warren and Phagan 1988; Yohe 1992b). According to Warren and Phagan, writing in 1988, only seven fluted points had been found in the Mojave Desert, although their tabulation apparently excludes the region north of the Garlock Fault, and thus the Coso - Panamint - Death Valley area. To their list we can add four Paleoindian points from the Coso Range and Rose Valley; three from Pilot

Knob Valley; and another basally-thinned point which is on display at the Death Valley National Monument Visitor Center which apparently was found within the monument. And to these can also be added four fluted point bases from the Edwards Air Force Base area (Mark Campbell, personal communication, 2000). Even more importantly, *49* fluted points were recovered by Davis (1978) around China Lake, substantially bolstering the evidence of Paleoindian use of this general region. Clearly, there was very substantial Paleoindian occupation of this area.

Typically, the Paleoindian evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos, as implied above (Whitley 2013). Furthermore, an obsidian Paleoindian point from the central Mojave Desert (Sutton and Wilke 1984) and another from the Rose Spring site (Yohe 1992b) have been sourced to the Coso Sugarloaf Quarry. When combined with the large number of points collected by Davis (1978) around China Lake, it is clear that this area was very important for these early occupants.

Although it is likely that Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation on the off-shore Channel Islands (e.g., Morris and Erlandson 1993), with the maritime adaptation this implies, and along Tule Lake in the San Joaquin Valley, indicates that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting is incorrect, and that more regional subsistence variation may emerge once better evidence from the far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP):

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is generally considered to be the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, although these may in fact actually date between 10,500 and 7,500 YBP and thus be coeval with fluted points. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition may have been an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988), or perhaps an existing tradition onto which Paleoindian points were added.

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas. (Notably, fluted points are also sometimes found at these same sites and geomorphological locations, contributing to the chronological ambiguity of both point types). Early Archaic sites are, accordingly, widely regarded as part of a lacustrine-focused adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing to the fact that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine

adaptations in general terms, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Davis (1978; Davis et al. 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al. 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in this portion of eastern California, this period apparently also included mobile hunting in other environments as well.

Middle Archaic (6000 to 4000 YBP):

Be this early evidence as it may, what is incontrovertible is that, regardless of date of *initial* occupation, *substantial* inhabitation did not occur until later, with the start of the Middle Archaic or Pinto Period, at about 6000 YBP. This lasted until approximately 4000 YBP. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake, southwest of the study area. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates such as chert and jasper (Sutton 1988a, 1988b).

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, a hot and dry period, and is a controversial topic in Mojave Desert prehistory due to its cultural and chronological ambiguity. Much of the *archaeological* ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the northeast, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminution in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is very clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California

were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP):

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 YBP., which correlates with improved and wetter environmental conditions across the far west – including in the western Mojave Desert, as Ramirez and Bryson's (1996) reconstruction indicates. This of course is the Holocene Maximum which, strictly, begins at about 3800 YBP. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 YBP (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994, 1998a), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley 2000). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al. 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al. 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California.

Rose Spring (1500 - 800 YBP):

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992a). This essentially corresponds to the Medieval Climatic Anomaly, a period of unstable weather patterns that resulted in major droughts interspersed with major flood events.

The transition in weaponry is, in technical terms, dramatic. But in fact the introduction of this new weapons technology probably did not have any immediate major impacts on social or cultural

systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Later Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this subsistence transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands: the Little Ice Age. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994, 1998a) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are known ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP):

The Late Prehistoric (or, in some areas, Numic) Period, runs from 800 YBP to the Historic Period, and corresponds to the Little Ice Age, *per se*. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Note, however, that ~300 YBP also represents a brief period of extreme drought, as indicated by Ramirez and Bryson's (1996) paleoclimatic model, within what was already a cool and dry period. Hence deteriorating environmental conditions may have contributed to a social disruptions combined with the introduction of new diseases, all of which would have had detrimental effects on the local population. Subsequently, the western Mojave Desert area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

Southern Sierra Nevada:

Much less research has been completed in the southern Sierra Nevada, and our understanding of its prehistory is still limited. Research completed so far, however, suggests that cultural-historical periods and temporally diagnostic artifacts are similar to those identified for the Mojave Desert, although subsistence and settlement patterns are likely to have differed significantly. The prehistory of the southern Sierra is summarized following Schiffman and Garfinkel (1981), Moratto (1984), and Cuevas (2002) below.

Little if any evidence for early occupation or use of the southern Sierra has so-far been identified, although it is possible that this is primarily a function of taphonomic or preservational issues. Occasional discoveries of Early Archaic, referred to in this region as the *Lamont Phase* (6000—3200 YBP), projectile points suggest at least occasional use of the mountains for hunting. These points are similar to the Pinto series commonly found on the desert, potentially demonstrating cultural connections with these lowland populations. Although the archaeological record is not yet clear, small camps may have been occupied during this period as well.

Population appears to have increased during the subsequent *Canebrake Phase* (3200 to 1350 YBP). According to Cuevas (2002:26), pine nut cache sites at higher elevations first appear during

this period, with Moratto (1984: 333) noting the establishment of camps near pinyon groves. Sierra Concave Base projectile points, essentially equivalent to Humboldt points in the Great Basin, are the primary diagnostic from this time period, although the temporal placement of Humboldt points is notoriously ambiguous.

The *Sawtooth Phase* (1350 to 650 YBP) is the chronological equivalent of the Rose Spring Period in the Great Basin and, as in that region, it experienced the transition from the atlatl and dart to the bow and arrow. Sites dating to this period are common. Ornaments appear for the first time, including *Olivella* shell beads, indicating trade connections with the coast.

The final time period, the *Chimney Phase* (650 YBP—Historic Contact), reflects the immediately pre-contact cultural pattern. This included a general hunting and gathering subsistence system with diagnostics again equivalent to those in the desert.

Research Design:

The research design for this project derives directly from the Historic Context, with its significant NRHP themes and associated property types, combined with the basic requirements of archaeological research. Starting with this second, fundamental, concern, the site evaluation will attempt to resolve the following topics:

1) Chronological placement of each evaluated site areas. Using temporarily diagnostic artifacts, soils stratigraphic analysis, and obsidian hydration and/or radiocarbon dating, as applicable, the age of each site will be identified.
2) Nature/function of each evaluated site. Using the functional identification of site features (e.g., bedrock mortars, pictographs), artifact types, and archaeological indicators (e.g., faunal remains), as well as site sizes, the nature and function of each tested site area will be established.

Resolution of these first two topics will allow consideration of the two significant NRHP themes: the evidence for Mid-Holocene Population Expansion and Adaptation to New Environments, and well as any evidence for changes associated with the Medieval Climatic Anomaly. Based on our site and testing sample, we will attempt to determine whether a population increase or decrease is evident at any point in time, based on the number and size of examined archaeological deposits; and whether evidence for increased regional interactions, as indicated by trade goods, can be identified.

2.4 HISTORICAL BACKGROUND

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly (JRP Historical Consulting 2009). The first permanent white settlers came to the Tehachapi Valley in the fall of 1854 and focused primarily on ranching that included raising cattle and growing hay and grain. Some of the first settlers in the 1860s also developed a lumber trade (Barras 2015).

Much of this early Euro-American occupation occurred in Cummings and Brite Valleys, southwest of the Project study area, and in the Golden Hills area, the location of the first town in the region. In 1869 James Williams built the first commercial establishment in the region, the Williams Hotel. A settlement, called Williamsburg, quickly grew up around it, in what is now Golden Hills.

Tehachapi Valley also provided an ideal location for trains making the climb from the San Joaquin Valley to switch engines and railcars. Southern Pacific Railroad began construction on a rail line connecting Bakersfield to the Mojave Desert and other eastern locations in 1874. Engineers overcame the steep grade through the Tehachapi Mountains with the "Tehachapi Loop," one of the major engineering feats of its day. The line through Tehachapi opened in 1876, with a station established a few miles east of Williamsburg, in what is now downtown Tehachapi. Business owners and residents of small communities already present in the area moved to Tehachapi to take advantage of new opportunities provided by the railroad, marking the end of Williamsburg (ibid). Williamsburg, subsequently referred to as "Old Town," is recorded as California historical resource P-15-007760, and is now named Golden Hills.

Greater economic opportunities arose in the Tehachapi Valley with the start of construction of the Los Angeles Aqueduct (formerly the Owens Valley aqueduct) in 1908. Large limestone deposits were known in the Tehachapi Valley since the first settlers entered the region, some even setting up kilns to burn the lime. When aqueduct construction began, the limestone deposits in the Tehachapi Valley became a major source for cement used in the project (tehachapi.com/v-about.php). The town of Monolith (originally named Aqueduct), located approximately 4.5-mi east of Tehachapi, had its beginnings as a camp to support cement plant workers. In 1909, shortly after the arrival of large-scale cement production in the valley, Tehachapi was incorporated (ibid).

In 1932, the first correctional institute for women in the state of California opened in Cummings Valley just west of Tehachapi. Though initially a facility independent from the California correctional system, beginning in 1944 the institution transitioned to control by the California Department of Corrections. The Kern County earthquake of July 21, 1952 rendered the facility unsafe for occupancy and the prisoners were all moved. The institution was rebuilt and reopened in 1954 as a California Correctional Institute for men. Today, it is the largest employer in the greater Tehachapi area (ibid).

The opening of California State Route 58 in 1964 put Tehachapi within an hour commute from Bakersfield and areas in the Mojave Desert. This, coupled with the favorable climate of Tehachapi, resulted in an increase in Tehachapi's commuter population and the development of outlying communities, such as Golden Hills, Bear Valley Springs, Stallion Springs and Sand Canyon.

3. ARCHIVAL RECORDS SEARCH

An archival records search was conducted at the California State University, Bakersfield, Southern San Joaquin Valley Archaeological Information Center (IC), by IC staff members to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study area; (ii) if the study area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Additionally, a search of the NAHC *Sacred Lands File* was conducted in order to ascertain whether traditional cultural places or cultural landscapes had been identified within or adjacent to the study area. The results of this archival records search are summarized here (see confidential Appendix A for details).

According to a records search, one previous block study, conducted by Archaeological Associates of Kern County in 2005, had covered the study area (KE-03231; Cultural Resource Survey for a 54.14-Acre Parcel (Tentative Tract No. 6508) along Highline Road and Tucker Road in Tehachapi, Kern County, California). No cultural resources were identified as a result of that study. An additional twelve (12) previous surveys had been completed within 0.5-miles of the study area (Table 1), and two cultural resources were identified as a result of those studies (Table 2). Due to the age of the previous field survey, which exceeds the limits for baseline data under CEQA, the study area was re-surveyed for the current proposed project.

Table 1. Survey Reports within 0.5-miles of the Study Area

Report No.	Year	Author (s)/Affiliation	Title
KE-00418	1993	J Garcia/ Cultural Resource Facility, California State University, Bakersfield	Archaeological Assessment of 53 Acres of Land in Tehachapi, Kern County, California
KE-00440	1991	LG Glover/ Archaeological Resource Management Corporation	A cultural resources inventory of selected route re-alignments for the Mojave Pipeline in California and Arizona
KE-00633	1993	ME Macko et al/ Macko Archaeological Consulting	National Register Eligibility Determinations for Historic Resources Along the Proposed AT&T Lightguide System, Victorville to Bakersfield, California
KE-02059	1997	B Love / CRM Tech	Cultural Resources Survey Report: Bakersfield-Rialto Fiberoptic Line Project, Kern, Los Angeles, and San Bernardino Counties, California
KE-03239	2002	J Underwood and JH Cleland / EDAW, Inc.	Cultural Resource Survey for a 54.14-Acre Parcel (Tentative Tract No. 6508) along Highline Road and Tucker Road in Tehachapi, Kern County, California
KE-03357	2006	RA Schiffman and AP Gould / Archaeological Associates of Kern County	Cultural Resource Survey for a 24.24 Acre Parcel (Tentative Tract No. 6714) Between Pinon Street and Cherry Lane in Tehachapi, Kern County, California
KE-03358	2006	RA Schiffman and AP Gould / Archaeological Associates of Kern County	Cultural Resource Survey for a 5.1 Acre Parcel, Tract No. 6668 at Pinon Street and Fig Drive in Tehachapi, Kern County, California
KE-03900	2009	RE Parr / Cal Heritage	Cultural Resource Assessment for the Replacement of Twenty-nine Deteriorated Power Poles on the Southern California Edison Cummings-Monolith 66 kV Circuit Tehachapi, Kern County, California
KE-03973	2010	AP Gould / Archaeological Associates of Kern County	Cultural Resource Survey for a 120-Acre Parcel, The Scott Ranch, Near Highline and Tucker Roads, Tehachapi, Kern County, California
KE-04167	2012	G Romani / Compass Rose Archaeological, Inc.	Archaeological Survey Report- Improvements to Highline Road from Banducci Road to Tehachapi/Willow Springs Road (approximately 7-miles), Tehachapi, Kern County, California

Report No.	Year	Author (s)/Affiliation	Title
KE-04278	2011	R Orfila / RSO Consulting	A Phase I Cultural Resources Assessment of Telecommunications Lines, Subtransmission Extension Lines, and Proposed Substation Locations for the Banducci 66/12kV "B" Substation Project in Kern County, California
KE-04518	2014	G Romani / Compass Rose Archaeological, Inc.	Archaeological Survey Report Antelope Run Bicycle/Pedestrian Path, Tehachapi, Kern County, California

Table 2. Resources within 0.5-miles of the Study Area.

Primary #	Type	Description
P-15-004753	Site	Prehistoric lithic scatter
P-15-015693	Structure	Historic “Scott Ranch”

A records search was also conducted at the Native American Heritage Commission (NAHC) Sacred Lands Files by NAHC staff to determine whether sacred sites or tribal cultural resources are present within the study area (Confidential Appendix A). No such resources had been identified within the Project study area. Tribal organizations on the NAHC-provided list were contacted to determine whether additional information or concerns existing with respect to the proposed project. No information or issues were identified by the tribal organizations contacted by letter and by a follow-up telephone call.

Based on the records searches, the APN 417-011-14&15 study area appeared to have relatively low archaeological sensitivity.

4. METHODS AND RESULTS

The APN 417-011-14&15 study area is approximately 57-acre in size. Prior to survey, historical topographic maps were consulted to identify any potential historic resources located within the study area. The study area was then examined with the field crew walking parallel transects spaced at 15-m wide across the parcel, in order to identify surface artifacts, archaeological indicators (e.g., shellfish or animal bone), and/or archaeological deposits (e.g., organically enriched midden soil). Special attention was paid to rodent burrow back dirt piles, in the hope of identifying sub-surface soil conditions that might be indicative of archaeological features or remains. No cultural resources were collected during the survey.

The study area was surveyed in February 2020. Soils throughout the study area are sandy-silty colluvium with very few lithic clasts. The study area primarily consists undeveloped but previously disturbed, flat land parcels. Vegetative cover was moderate and ground surface visibility overall can be considered good and adequate for Phase I coverage.

4.1 INVENTORY RESULTS

No cultural resources of any kind were identified during the intensive survey of the APN 417-011-14&15 study area.

5. SUMMARY AND RECOMMENDATIONS

An intensive Phase I archaeological survey was conducted for APN 417-011-14&15, Tehachapi, Kern County, California. A records search of site files and maps was conducted at the Southern San Joaquin Valley AIC and a search of the NAHC *Sacred Lands File* was completed. These investigations determined that no sites had been recorded within or near it. No Native American sacred sites or cultural landscapes had been identified within or immediately adjacent to the study area.

No cultural resources of any kind were identified as a result of the intensive field survey of APN 417-011-14&15.

5.1 RECOMMENDATIONS

An archival records search, background studies, and an intensive, on-foot surface reconnaissance of APN 417-011-14&15, Tehachapi, Kern County, California, were conducted as part of a Phase I cultural resources survey. No cultural resources were identified during the survey. The development of this property does not have the potential to result in adverse effects or impacts to historical properties or resources, and no additional archaeological work is recommended.

In the unlikely event that cultural resources are encountered during construction of the fence or during any other grading within the parcel, it is recommended that an archaeologist be contacted to evaluate the discovery.

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Appendix D:

Conceptual Drainage Study

Conceptual Drainage Study

for:

Tentative Tract 7363

A 57.4-Acre Single-Family Residential Development at The Northeast Corner of Highline Road and Tucker Road Tehachapi, California

Prepared for:

Comprehend and Copy Nature

January 22nd, 2020

Project No. 19-871

Submitted by: *1-22-20*

Matthew K. VoVilla, R.C.E. 43130 *Date*

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- East-West Channel "As-Builts" Excerpts from Tehachapi-Cummings Water District Plan No. 3166
- North-South Channel & ID-3 "As-Builts" Excerpts from Tehachapi-Cummings Water District Flood Control Facilities Plan No. 8244

1.0 INTRODUCTION

This report is a conceptual drainage study prepared as part of the environmental document for a proposed 57.4-acre single-family residential development in the City of Tehachapi, California, sometimes hereinafter referred to as "Project".

In very basic terms, the purpose of this report is to provide a conceptual basis for the design of a drainage system for the Project and verify that the effects of storm water can be mitigated to less than significant.

At the time of this writing, the City of Tehachapi Planning Commission has approved a master concept plan for the Project, and the environmental document is being prepared. This report will likely be a component of the environmental document as required by the California Environmental Quality Act (CEQA). Future approvals for the Project include the Master Plan, the Tentative Map, a Precise Development Plan, Improvement Plans for grading, streets and utilities, the Final Map, a Storm Water Pollution Prevention Plan, and individual building permits for homes. A detailed drainage study supporting the Improvement Plans will be prepared during that approval process.

2.0 PROJECT DESCRIPTION:

The proposed Project is a 57.4-acre residential subdivision that is generally located at the northeast corner of Tucker and Highline roads, in the City of Tehachapi, California. The Project is bounded by a Tehachapi Cummings County Water Storage District (TCCWSD) flood control channel on the east and land owned by the TCCWSD to the north. The west and south boundaries of the Project are the rights-of-ways of Tucker and Highline Roads, respectively.

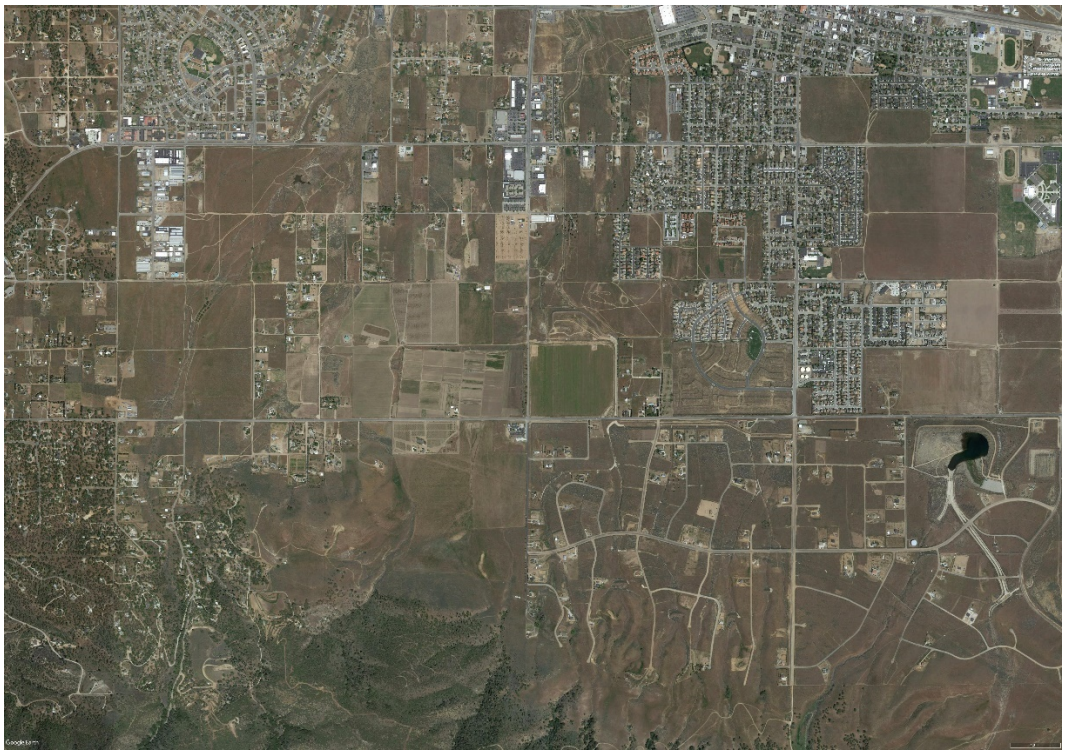


Figure 1: Aerial Photo of Project Site, Tehachapi Mountain (south), and City of Tehachapi (north)

The Project proposes up to 237 lots for single family homes with the average lot size slightly greater than 6,000 square feet. Included within said 237 lots are 4 larger lots ranging in size from 10,091 to 15,938 square feet. The Project also proposes a Community Center sited on 1.0 acres, green space comprising 1.0 acres, and a secure area for RV parking and private storage.

Exhibit "E" herein shows the general layout of the Project with rectilinear streets and single entrances from Tucker and Highline Roads. It is assumed the Project will construct drainage improvements to collect storm water reaching these frontage roads. In accordance with City of Tehachapi Standards and requirements, the Project will also have to collect and properly dispose of storm water generated "on-site".

At the time of this report, a concept plan for the Project has been approved by the City of Tehachapi Planning Commission. Preparation of the environmental document is currently underway. As indicated, the Master Plan, Tentative map and Precise Development Plan have not been approved. Pending approval of the Tentative Map and the Environmental document, grading and improvement plans have not yet been prepared. It is acknowledged that the

environmental analysis and review could have some effect on the lot layout; however, unless the changes are substantial, they should not affect the analysis and "findings" of this report.

3.0 EXISTING CONDITIONS

The Project site itself is relatively flat, treeless, and is devoid of defined drainage courses. The site has been cultivated in the past, but is currently fallow ground and covered in native grasses. Although described as "flat", the site slopes uniformly to the north with gradients ranging between 5 and 6 percent. Although possibly a by-product of past cultivation, the terrain is relatively featureless.

3.1 On-site Site Soils: At the time of this report, a geotechnical investigation has not been prepared for the Project. However, the Natural Resources Conservation Service's Cooperative Soil Survey indicates the soils within the site are predominately Havala Sandy Loam, and classified as Hydrologic Soil Group "C". Group "C" soils are characterized as having slow infiltration rates when thoroughly wet.

3.2 Offsite Soils: Within the watershed tributary to the Project, soils are classified as Havala sandy loam, Steuber sandy loam, and Tehachapi sandy loam comprising 83.2%, 7.8% and 9.0%, respectively. These soils are classified as hydrologic groups C, A, and C, again respectively.

3.3 Flood Zone: The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), classify the site as Zone "X", which is defined as areas "outside the 0.2% annual chance floodplain". Included herein in Appendix "A' is an excerpt from the FIRM map that encompasses the Project: Map No. 06029C3250E, dated September 26, 2008.

Surrounding and abutting properties to the Project are also classified as Flood Zone "X".

Figure 2: Photo taken of the Project site from Highline Road facing north.

3.4 Frontage Roads: As indicated, the south boundary of the site fronts Highline Road. The west boundary of the Project fronts Tucker Road. Highline Road is an east-west Kern County Road with the entirety of its right-of-way within the County of Kern, i.e., the north half is not within City jurisdiction.

3.4.1 Highline Road: Highline Road fronting the Project is a two-lane roadway with paved shoulders. The total paved width is 40 feet. Highline has an overall slope to the west, but has a number of localized "sags" in the roadway profile along the Project's frontage. As typical for an original design of a rural County Road, the roadway profile follows the natural terrain but is slightly elevated. The roadway crown sheds storm water to either side of the road. A topographical survey of the Project has revealed at least four low points or "sags" in the Highline Road profile just within the Project's frontage. However, within the Project's frontage there are no defined natural water courses reaching the roadway and thus there are no culverts in said segment of Highline Road. Although there are numerous localized sags in Highline, the road generally flows to the west well beyond its intersection with Tucker Road. However, a culvert crosses Highline just west of its intersection with Tucker Road. The existing roads grades allow flow on the south side of Highline to cross Tucker Road and flow in a circuitous route to the culvert inlet at the southwest corner of the intersection. At the northwest corner of Tucker and

Highline an inlet of sorts exists at the edge of pavement on the north side of the road. This "inlet" consist of (2) 18-inch corrugated metal pipes with flared end sections that are flush with the north shoulder edge of pavement. These pipes collect storm water along the edge of the roadway pipe it into a channel that runs northward along the west side of Tucker Road. As part of this study, this area has been inspected during and after rain events, and ponded water has been observed in low areas on the south side of Highline just east of Tucker Road, but there were no observations of a flooded roadway.

Figure 3: Drainage Inlet on the North side of Highline Road just west of the Tucker Road Intersection.

Additionally, Highline Road sits roughly 4,500 feet from the base of the Tehachapi Mountains. The historic watershed from these mountains generally flows northward toward Highline Road and the Project. As discussed in additional detail later in this report, flood control channels have been constructed which intercept the majority of the storm water runoff from the south flowing towards Highline Road. Flood control channels converge on the south side of Highline Road just east of the Project and are conveyed to the north side of the roadway via a concrete triple box culvert. Existing flood control improvements are further discussed in detail in Section 5.2 of this report.

3.4.2 Tucker Road: Tucker Road was originally a Kern County road, but has been annexed into the City of Tehachapi. Tucker Road fronting the west boundary of the Project slopes to the north with longitudinal gradients between 4 and 6 percent. A roadway sag occurs in Tucker Road roughly 370 feet north of the Project, which is also the location of a watercourse culvert. As mentioned, an unimproved channel flows northerly along the west side of Tucker Road commencing at the previously mentioned culvert crossing of Highline Road. This channel joins a larger water course, which crosses Tucker Road through a single 96-inch corrugated metal pipe culvert. Concreted rock rip-rap has been installed at both ends of said culvert. This culvert has been in place for over 20 years and appears entirely stable. After crossing Tucker Road, this water course continues flowing northward and spreads out in an alluvial fan, but is eventually "re-confined" in a man-made channel that crosses under Cherry Lane Road via a culvert. The flow in this watercourse is not intercepted by the flood control basin just north of the Project.

Figure 4: Tucker Rd. Culvert with Concreted Rock Slope Protection. Photo faces southwest from the west shoulder of Tucker Road

3.5 Tehachapi Cummings County Water District (TCCWD) Flood Control Facilities: As discussed briefly, there are two flood control channels running generally east and west on the south side of Highline Road. These flood control channels are often referred to as the "East-West Channel" by the TCCWD. The East-West Channels consist of two "reaches" that converge on the south side of Highline near the east end of the Project. From their confluence point, the

channel is concrete lined and crosses to the north of Highline Road via a concrete box culvert. The concrete lined channel continues flowing northward from Highline Road and abuts the east property line of the Project. Ultimately the channel deposits its flow into a TCCWD flood control basin just north of the Project. This basin is referred to by the TCCWD as the ID3 Basin.

As shown on Exhibit "D" in Appendix "B" of this report, the East-West channel intercepts a drainage tributary area of roughly 1,339 acres. As stated, the majority of drainage area tributary to Highline Road (and the Project) are intercepted by said channels and conveyed northward across Highline Road via said existing box culvert and north around the subdivision. However, there is a relatively small area situated between the East-West flood control channel and Highline Road that is not intercepted. This area, roughly 49 acres, contributes storm water runoff to the south side (of Highline Road). This flow is quantified later in this report.

The as-built plans for the East-West Channel, the North-South channel, and the Highline Road concrete box culvert are included in Appendix "D" herein.

4.0 CONCEPTUAL STORM DRAIN SYSTEM

4.1 Internal Drainage System: Exhibit "E" herein shows the conceptual drainage system for the Project, which includes direction of street slopes, catch basins, storm drain piping and points of discharge. As discussed, the Project site naturally slopes to the north at about 5 percent. General grading of the site, street grades and storm drain piping will be sloped to be consistent with the natural ground gradients. Although beyond the scope of this conceptual drainage study, the internal local street gradients will likely be a little steeper than the natural ground slope since intersections must be "flattened" to achieve ADA compliance at curb ramps.

As shown on Exhibit "E", the grading concept is for the subdivision to "crown" at a middle north-south axis, with east-west streets flowing away from the crown to the most east and most west north-south streets. Storm drain pipelines and catch basins have been "sited" within these north-south streets to minimize the use of cross-gutters in the subdivision. Although sometimes necessary, cross gutters are unpleasant to drive across, often the first location within a

subdivision to require pavement maintenance, and are an encumbrance during roadway rehabilitation projects. At this time, there are only two cross-gutters planned within the Project.

Proposed storm drain pipeline within the Project will flow to the north and will ultimately connect and discharge into the existing concrete lined and un-lined flood control channels that runs adjacent to the north and east boundary of the Project. Again, these channels flow into the flood control basin just north of the Project. A large lot proposed in the northeast corner of the Project will have sufficient room to contain the storm drain pipe that deposits into the TCCWD flood control channel: A clear easement will be required through this lot for the storm drain connection to the TCCWD channel. Also, as described in more detail in Section 5.2, "offsite" storm water reaching Tucker and Highline Roads, including runoff from the roads themselves, will also be captured and piped into the Project's system.

It is noted again that said adjacent flood control channels and basin are owned by the Tehachapi Cummings County Water District (TCCWD). Prior to preparation of this report, a meeting was held with the TCCWD and the Development team. The Developer received permission from TCCWD to discharge storm water from the Project into their flood control channels. Subsequent communication with the TCCWD further confirmed the acceptance of storm water from the Project; however, the point of connection to the flood control channels, including location and details of the connection(s), have not been discussed with the TCCWD. Connection details such as flap gates will be determined during the design process and in consultation with the TCCWD.

4.2 Drainage of Highline Road: As discussed, Highline Road has numerous high and low points within its profile along the Project's frontage. Overall, Highline Road is roughly 4 feet lower at its intersection with Tucker Road than at the east boundary of the Project.

Typically on a two lane rural roads without curb and gutter to contain storm water runoff, a "flat" profile or a profile with numerous sags does not necessarily create drainage problems. In these cases, the crown of the roadway simply sheds storm water from the traveled way into roadside ditches or adjacent property. However, if these roads are widened, the up and down profile creates challenges to design an efficient collection system for storm water. This is especially

true when only one half of the road is being widened since in this scenario the entire road profile cannot be revised to consolidate sags or inlet locations. As stated, Highline Road fronting the Project has 4 existing profile sags within this segment alone. It's somewhat impractical to have four drainage inlets within this relatively short section of Highline Road. Without changing the centerline profile, the best solution to minimize the number of low points during widening is by creating a "high point" in a curb or ditch flowline using a minimal cross-slope, such as 1.5 percent. From the ditch or curb "high point" the flowline is sloped "away" at the minimum longitudinal slope, possibly 0.25%, until the maximum permissible roadway cross-slope, say 3.4 percent, is reached. At this point, the flowline is sloped "up" at the minimum longitudinal slope (say 0.25%) until the minimum roadway cross slope of 1.5 percent is reached, and the process is repeated as necessary. Drainage inlets of some form are installed at the resulting low points. Sometimes the distance between inlets can be further expanded where short sections of the road have satisfactory longitudinal slopes.

The final design of the Highline Road is premature at this time, and beyond the scope of this study. However, a cursory review identified two logical locations for drainage inlets of some form, which are shown on Exhibit "E". One inlet to be sited in the north flowline is proposed to be piped into the Project's internal storm drain system, and the other is proposed to be piped directly into the flood control channel. Final design of the subdivision could result in more than two inlets along Highline Road, and all could conceivably be piped into the Project's internal storm drain system rather than draining directly into the flood control channel.

It should be noted that the extent of improvements to the north side Highline Road has not yet been determined by the City of Tehachapi. In any event, the low points along the north edge of shoulder will be established and some form of drainage inlet would collect storm water reaching these locations. Whatever inlet is ultimately used would be piped into the "on-site storm drain system. Again, Exhibit "E" shows possible inlet locations on the north side of Highline Road.

The south half width of Highline Road has a 12-foot wide traveled way with 7 to 8-foot paved shoulders. There is some semblance of a ditch as well as depressed areas on the south side of Highline Road which store and conveys storm water. These depressed areas are evident due to

some "ponding" after a significant rain. There are no improvements proposed by the Project for the south side of Highline Road.

As discussed, the TCCWD's flood control channel intercepts the majority of the offsite watershed to the south. However, roughly 49 acres between the flood control channel and Highline does contribute storm water that runs north toward the road. As indicated, the intersection of Highline and Tucker Road is roughly 4 feet lower in elevation than Highline at the east end of the Project. Generally storm water collects in depressed areas on the south side of Highline. If these areas overflow, they drain westerly across the south side of Tucker Road and to a culvert entrance at the southeast corner of the intersection. The inlet on the north side of Highline, just west of Tucker, receives storm water from road runoff, and deposits it into the natural channel running northerly along the west side of Tucker and eventually to a confluence at the culvert crossing 370 feet north of the Project.

4.3 Drainage of Tucker Road: As discussed, Tucker Road within the Project has a longitudinal gradient of 4 to 6 percent sloping to the north. Roughly 370 feet north of the Project exists a low point in the Tucker Road profile. At this location, storm water running in ditches paralleling each side of the Tucker are deposited into a natural water course which flows northeast.

The extent of improvements to Tucker Road by the Project is not known at this time. In any case, the drainage characteristics of Tucker Road will remain the same. As shown on Exhibit "E", storm water flow from the east half of Tucker Road will surface flow into the Project via the centrally located main entrance. Storm water entering the tract at the Tucker Road entrance will be intercepted by internal catch basins and piped into to the Project's storm drain system. If needed a drainage inlet at the Project's north property can capture flow generated north of the Tucker Road. This flow can also be piped in to the Project's internal storm drain system.

5.0 HYDROLOGY:

5.1 Limitations: At this time of this report, the Master Study, Tentative Map and Precise Development plan have not been approved by the City. Nor have any improvement plans been prepared to date. Given the stage of the Project, and without a final grading design, precise calculations for both hydrology and storm drain hydraulics would be academic and premature at this time. However, "offsite" hydrology to determine storm water potentially reaching Highline Road and the flood control channel south of the Project, can be quantified and therefore is included in this study. In addition, the existing east-west flood control channel south of Highline and the concrete lined channel paralleling the Project's east boundary are checked herein to verify adequate capacity.

With respect to the conceptual "onsite" storm drain system, it has been discussed that calculations are not warranted at this time given. However, the adequacy of the proposed conceptual storm drain layout can be confirmed by evaluating the largest drainage subarea within the Project: If storm water from the largest on-site drainage area does not overtop the future street curb, and can be intercepted by a reasonably sized street catch basin, in can be concluded that all other on-site drainage subareas can also be satisfactorily intercepted.

Given the natural slope of the land and assuming both street and storm drain pipelines will roughly follow these gradients, it can be assumed storm drain conveyance system can be adequately sized. Again, detailed calculations are not warranted at this stage of the Project. Furthermore, the storm drain system will tie into the existing flood control basin rather than a terminal sump. The implications of tying into a high capacity channel with a 6 plus percent gradient is that a free outlet will control the hydraulic grade line (rather than an outlet into a sump with several feet of submergence). It is very likely the entire "on-site" storm drain system will flow "open", even when conveying the design storm.

Given the preceding parameters, hydrologic and hydraulic calculations are provided in the following sections.

5.2 Offsite Hydrology:

5.2.1 East-West Flood Control Channels: Exhibit "C" herein is an excerpt from the USGS Quadrangle Map showing natural ground contours and the watershed tributary to the East-West TCCWD flood control channel south of Highline Road. The precise area tributary to the East-West Channel is roughly 1,339 acres and is shown on Exhibit "D", and labeled as Drainage Area "C". In addition, the area between the East-West Canal and Highline Road is 49 acres and is also shown on Exhibit "E", labeled as Drainage Area "B".

The storm water runoff that is tributary to the East-West flood control channels was estimated using the Unit Hydrograph Method outlined in the Kern County Hydrology Manual. CivilD computer software was used to facilitate extensive calculations. The calculations yield 937 cfs and 1,922 cfs, for the 10-year and 100-year storms, respectively. Computer inputs and run results are included in Appendix C herein.

Section 6.1 of this report provides hydraulic calculations for the East-West Flood Control Channel when subjected to the 10 and 100-year storm flows calculated herein.

5.2.2 Localized Drainage Area Between East-West Flood Control Channel and Highline Road: Drainage Area B, the area between the East-West Canal and Highline Road, was also calculated using the Alternate Rational Method, as outlined in the Kern County Hydrology Manual.

The Alternate Rational Method, per the Kern County Hydrology Manual (KCHM), is an equation used to estimate the storm water runoff from small watersheds. The Alternate Rational Method is based on a formula that equates storm water runoff to the average rainfall intensity (at a time the watershed is producing the maximum instantaneous runoff, the time of concentration), the watershed drainage area, and the permeability of the natural soil or developed conditions. The formula is:

$$Q = CiA$$

where:

Q = design discharge (cfs),

C = runoff coefficient (dimensionless),

i = design rainfall intensity (in/hr), and

A = watershed drainage area (acre).

Calculations for the area between Highline Road and the East-West Channel have been included in Appendix B of this report. Using figure 15-4 of USDA's Hydrology National Engineering Handbook[1], an overland sheet flow velocity of 1.3 feet per second was conservatively used to calculate a time of concentration. The time of concentration was calculated from the "upstream" point of the watershed yielding 14 minutes. The Alternate Rational Method yielded a flow of 53 cfs and 140 cfs, for the 10-year and 100-year storm events, respectfully.

5.3 On-Site Hydrology:

Given the conceptual storm drain layout provided in Exhibit E, the largest on-site drainage subarea to a single inlet or catch basin was calculated for the 10-year storm event. This area is shown on Exhibit "E" as Subarea "A". Since Subarea "A" is only 8.75 acres, the Alternate Rational Method, as was used. Calculations are included on Table 2 in Appendix "B" of this report and yielded 10.08 and 25.83 cubic feet per second for the 10-year and 100-year storm events, respectfully.

6.0 HYDRAULIC ANALYSIS:

6.1 Capacities of TCCWD Flood Control Channels: The flood control channels in the vicinity of the Project all have relatively long reaches with continuous gradients, and flow is likely to reach Normal Depth. Given these conditions, the Normal Depth of the Flood Control Channels has been calculated at two locations using the Manning's Equation. The Manning's Equation is an empirically derived equation that relates flow velocity and flow rate to channel geometry, channel gradient, and the frictional resistance between the fluid and the channel or

[1] Kenneth M. Kent, et al.; *Hydrology National Engineering Handbook Chapter 15 – Time of Concentration, (*United States Department of Agriculture, 2010)

pipe walls. The Manning's Equation was developed to determine the normal depth of flow and flow velocity in open channels; however, the Manning's equation has also been proven accurate for conduits flowing full. The Manning's Equation is as follows:

$$Q = VA = \frac{1.49}{n} AR^{\frac{2}{3}}\sqrt{S}$$

where:

Q = Flow Rate, (ft^3/s)

V = Velocity, (ft/s)

A = Flow Area, (ft^2)

n = Manning's Roughness Coefficient

R = Hydraulic Radius, (ft)

S = Channel Slope, (ft/ft)

The East-West flood control channels are mostly unlined: The walls of these channels south of Highline Road are native soil. The channel becomes concrete lined just south of the box culvert crossing of Highline Road and remains concrete lined as the channel flows northward running along the east boundary of the Project. As easily ascertained from Manning's equation, the area and channel depth of flow increases as the friction coefficient "n" increases. Although there are numerous references for the widely used Manning's equation, the United States Department of Agriculture Handbook provided a Manning's "n" values for smooth earth channels as 0.033, and mildly rough concrete as 0.020.

When conveying the 100-year flow, determined herein in Section 5.2.1 as 1,922 cubic feet per second (cfs), the channel depth was calculated at three locations: the earthen channel on the south side of Highline Road, the concrete lined channel south of Highline Road, and the concrete lined channel north of Highline Road. The channel cross-section and gradients were taken from as-built plans provided by the TCCWD. Calculations are included in Appendix "B" herein. Again, when conveying the 100-year storm flow, the calculations yield a flow depth in the earth channel not exceeding 8.4 feet. Similarly, the flow depth for the concrete lined channel running along the east boundary of the Project was calculated to be 5 feet. Given the depths of the

channels are 11.71 feet and 6.16 feet, it is concluded that the TCCWD flood control channels are adequate to intercept and convey storm water storm water from all tributary areas. It is noted that the storm flow reaching the flood control channels was not "bulked" for the hydraulic analysis. Storm water runoff calculated for undeveloped areas is often "bulked" to account for the additional volume caused by sediment and debris within the flow following a fire.

In addition, to determine the generally stability of flow in the flood control channels, Critical Depth (Dc), was calculated along with the Normal Depth (Dn). These calculations are also included in Appendix "B" herein. For the earthen channel and concrete lined portion of channel south of Highline, Dc was less than Dn, indicating Subcritical Flow and a mild channel. Subcritical flow and mild channels are considered stable.

However, normal depth (Dn) for the concrete channel north of Highline Road was calculated to be less than Critical Depth (Dc), indicating Supercritical Flow and a steep channel. Supercritical flow is far less stable than Subcritical flow, is usually rapid and turbulent, subject to hydraulic jumps, and highly erosive. This is likely the reason this channel was concrete lined.

6.1.1 Existing Triple Box Culvert Crossing Highline Road: The existing box culvert crossing Highline Road and conveying flow from the TCCWD flood control channels was evaluated for the 100-year storm event (calculated in Section 5.2.1, as 1,922 cfs). Calculations included in Appendix B indicated that the existing box culvert has adequate capacity for the 100-year storm event. Additionally, under this scenario, the calculated Headwater at the culvert entrance did not encroach on the roadway, much less overtop.

It is noted that the ultimate widening of Highline Road could require extension of the box culvert at each end. Extension of the box culvert will increase the friction loss through the culvert and will affect the Headwater at the culvert entrance. Therefore the box culvert was further evaluated assuming a 20-foot extension at each end, (an increase of 40 linear feet). These calculations for the extended culvert also indicated adequate capacity with a Headwater lower than the traveled way of Highline Road.

Although beyond the scope of this study, roadway widening reduces the cover of existing utility crossings due to the extended cross-slope. In the event of widening of Highline Road, the box culvert will have in excess of 5 feet of cover at the curb line.

6.2 Inlet Capacity for Largest On-Site Drainage Sub-Area: Calculations in Appendix "B" indicate a curb inlet, located in a sag, with a 6-foot opening is adequate to fully capture the flow from on-site Subarea "A", (again, the largest sub-area within the Project). Therefore, given the uniformity of the lotting layout, it is assumed that all areas lesser in size thant Drainage subarea "A", can be intercepted by a single catch-basin without overtopping the curb.

7.0 NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM AND STORM WATER POLLUTION PREVENTION PLANS

In accordance with the Federal Government's National Pollution Discharge Eliminate System (NPDES) program, a Storm Water Pollution Prevention Plan (SWPPP) will be required for the Project. The purpose of the SWPPP is to eliminate pollutants from entering storm water runoff, or infiltrating into the ground, ultimately polluting watercourses and ground water. In California, the Federal Government has relegated enforcement of the NPDES program to the State Regional Water Quality Control Board. The SWPPP must address all phases of construction of the Project, and must be accepted by the State Regional Water Quality Control Board. As indicated, the SWPPP will outline methods and procedures, aka Best Management Practices (BMP's), that must be implemented during construction to reduce or fully eliminate pollutants from entering storm water runoff. During construction, weekly SWPPP inspections by qualified personnel are required to monitor the effectiveness of pollution control measures. Additionally, post storm inspections are required if the site receives a specified threshold of precipitation. The SWPPP is a dynamic document, and is modified as necessary to achieve results. Just as with precise hydraulic calculations at this stage of the Project, listing specific SWPPP BMP's for the Project would be premature. However, it is noted that State acceptance of the Project's SWPPP will be required before the City of Tehachapi approves the grading and other improvement plans.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The analysis and calculations included in this report have shown that the effects of storm water can be satisfactorily mitigated by the Project. The Study has provided a preliminary design for the Project's storm drain system. The proposed storm drain system design will be refined and finalized as improvement plans are prepared: The storm system will be designed to collect and discharge storm water generated onsite as well as storm water run-on from "offsite". Additionally, the Study has demonstrated the following:

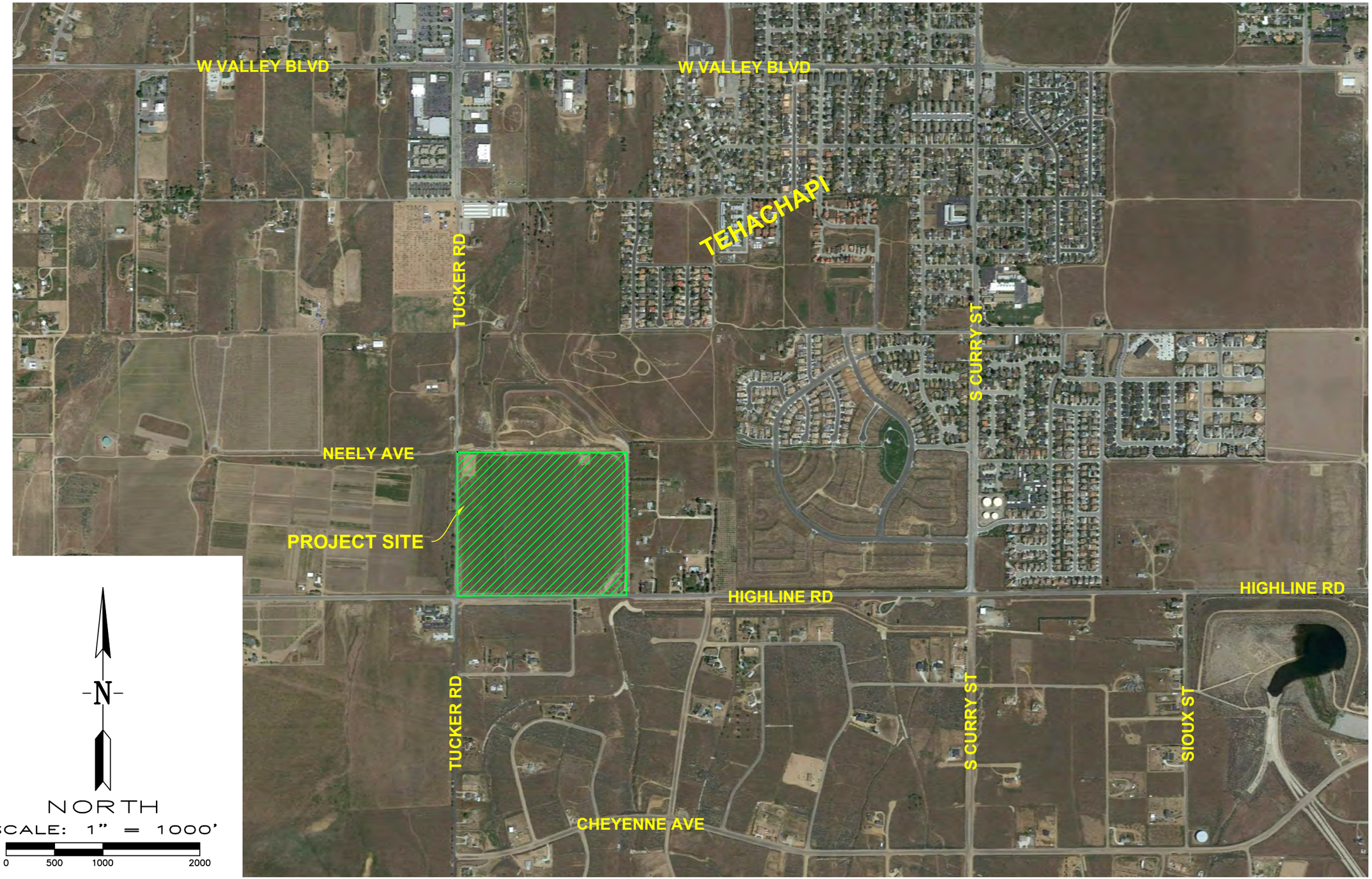
a) Existing flood control channels intercept the majority of offsite flow from the watershed directly south of the Project.
b) Existing flood control channels are sufficiently sized to receive and convey storm water from all tributary areas.
c) An internal storm drain system for the Project is feasible and can be designed to collect and convey storm water that is generated both internally and along the Project's frontage roads. Drainage will be improved on both Highline and Tucker Roads as the Project will decrease storm water flowing within or adjacent to these roadways.
d) The conceptual storm drain system provided in the study is adequate to collect, convey, and dispose of storm water.

As discussed, this study is only conceptual since neither the master plan, tentative map, or improvement plans have been approved. Final design for tract improvements will require further detailed calculations that exactly follow design plans. The final plans and supporting calculations must demonstrate adequacy of all proposed improvements.

Finally, it can be concluded that the once mitigated, the impact of storm water to the project and its surrounding area, will be less-than-significant.

APPENDIX “A”

EXHIBIT "A" - AERIAL MAP



NORTH

SCALE: 1" = 1000'

0 500 1000 2000

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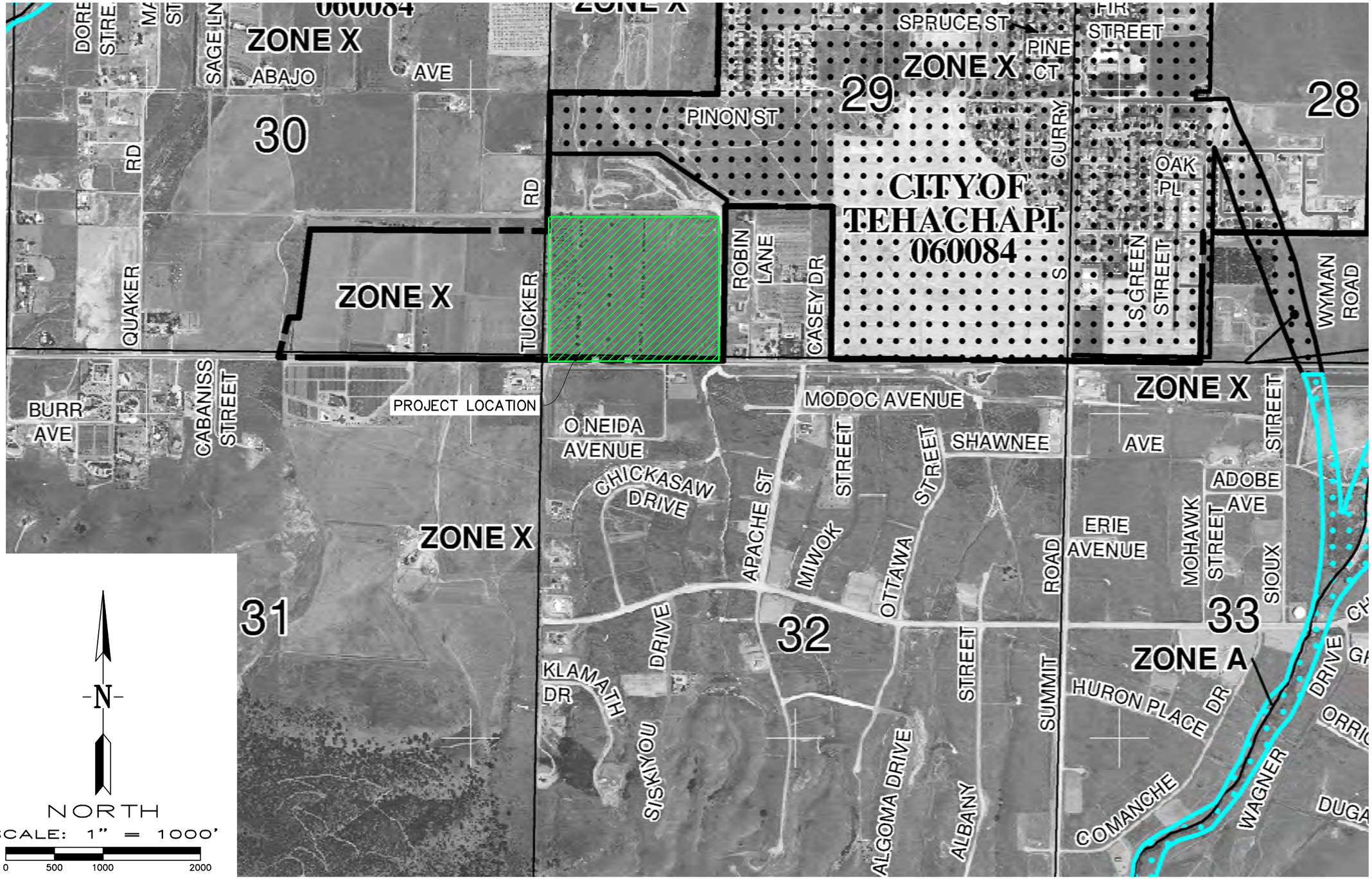
CIVIL
STATE OF CALIFORNIA

MATTHEW K. VOVILLA
RCE 43130 EXP. 3/31/20

EXHIBIT "A" - AERIAL MAP
CONSIDER AND COMPREHEND NATURE
HIGHLINE RD AND TUCKER RD
TEHACHAPI, CA

JOB No.:	19-871
DWG NO.:	EXHIBIT
DATE:	001/06/2020
DRAWN BY:	BMB
CHECKED BY:	MKV
SHEET	1 OF 1 SHEETS

EXHIBIT "B" - FEMA MAP



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MATTHEW K. VOVILLA
RCE 43130 EXP. 3/31/20

EXHIBIT "B" - FEMA MAP
CONSIDER AND COMPREHEND NATURE
HIGHLINE RD AND TUCKER RD
TEHACHAPI, CA

JOB No.:	19-871
DWG NO.:	EXHIBIT
DATE:	001/06/2020
DRAWN BY:	BMB
CHECKED BY:	MKV
SHEET	1 of 1 SHEETS

EXHIBIT "C" - USGS MAP

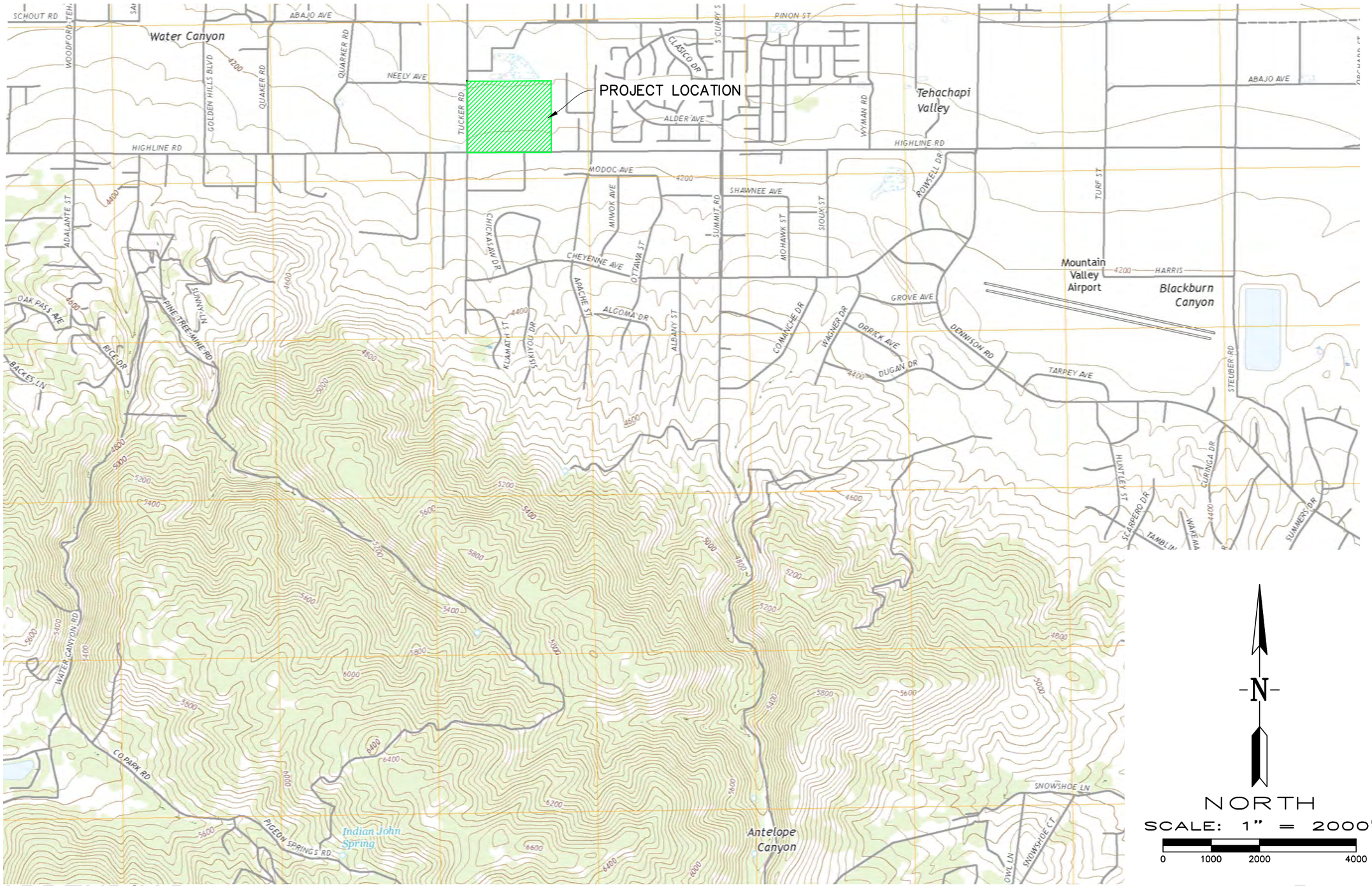

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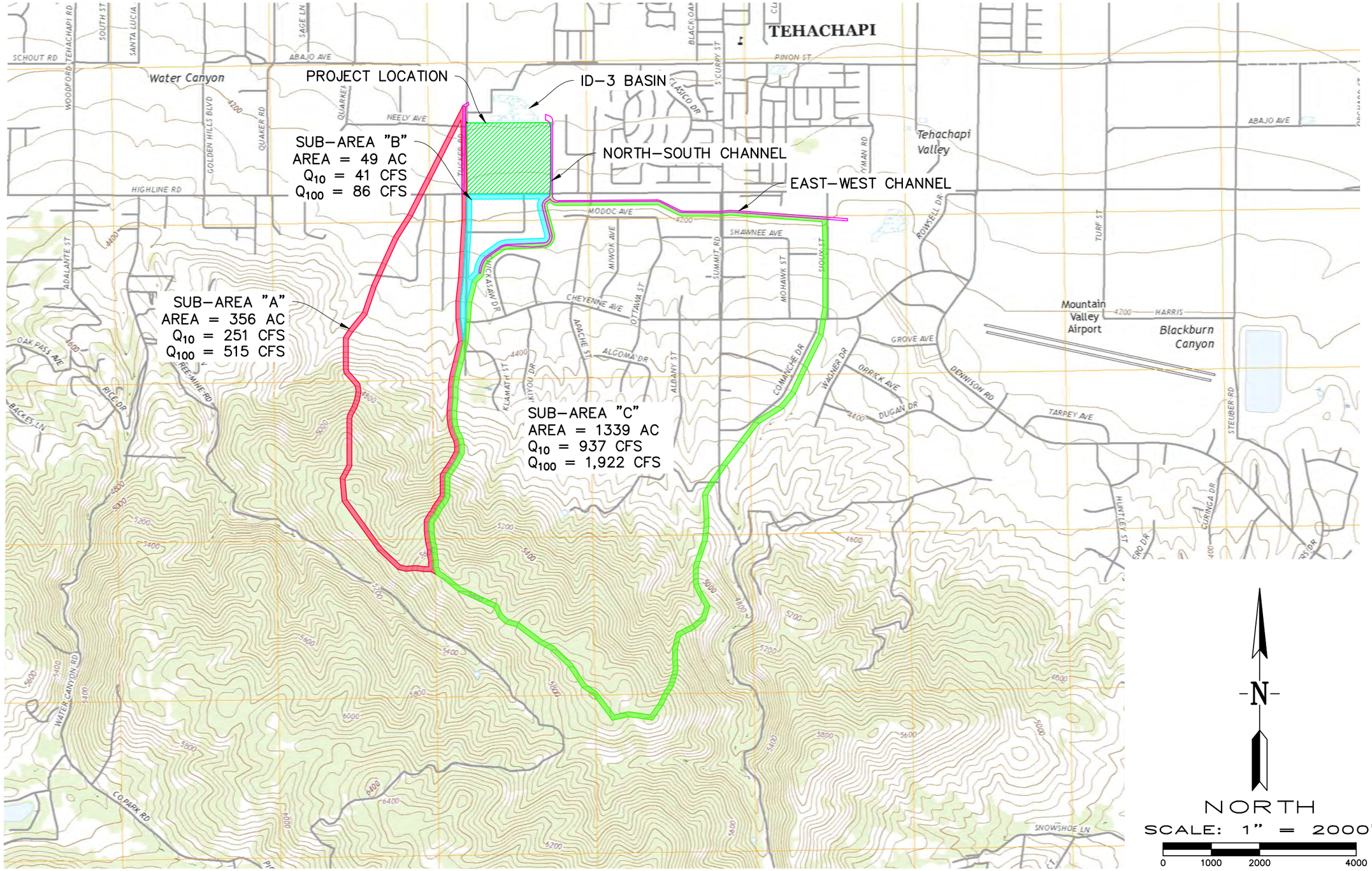
EXHIBIT "C" - USGS MAP
CONSIDER AND COMPREHEND NATURE
HIGHLINE RD AND TUCKER RD
TEHACHAPI, CA

JOB No.:	19-871
DWG NO.:	EXHIBIT
DATE:	001/06/2020
DRAWN BY:	BMB
CHECKED BY:	MKV
SHEET	1 OF 1 SHEETS

EXHIBIT "D" - HYDROLOGY AREA



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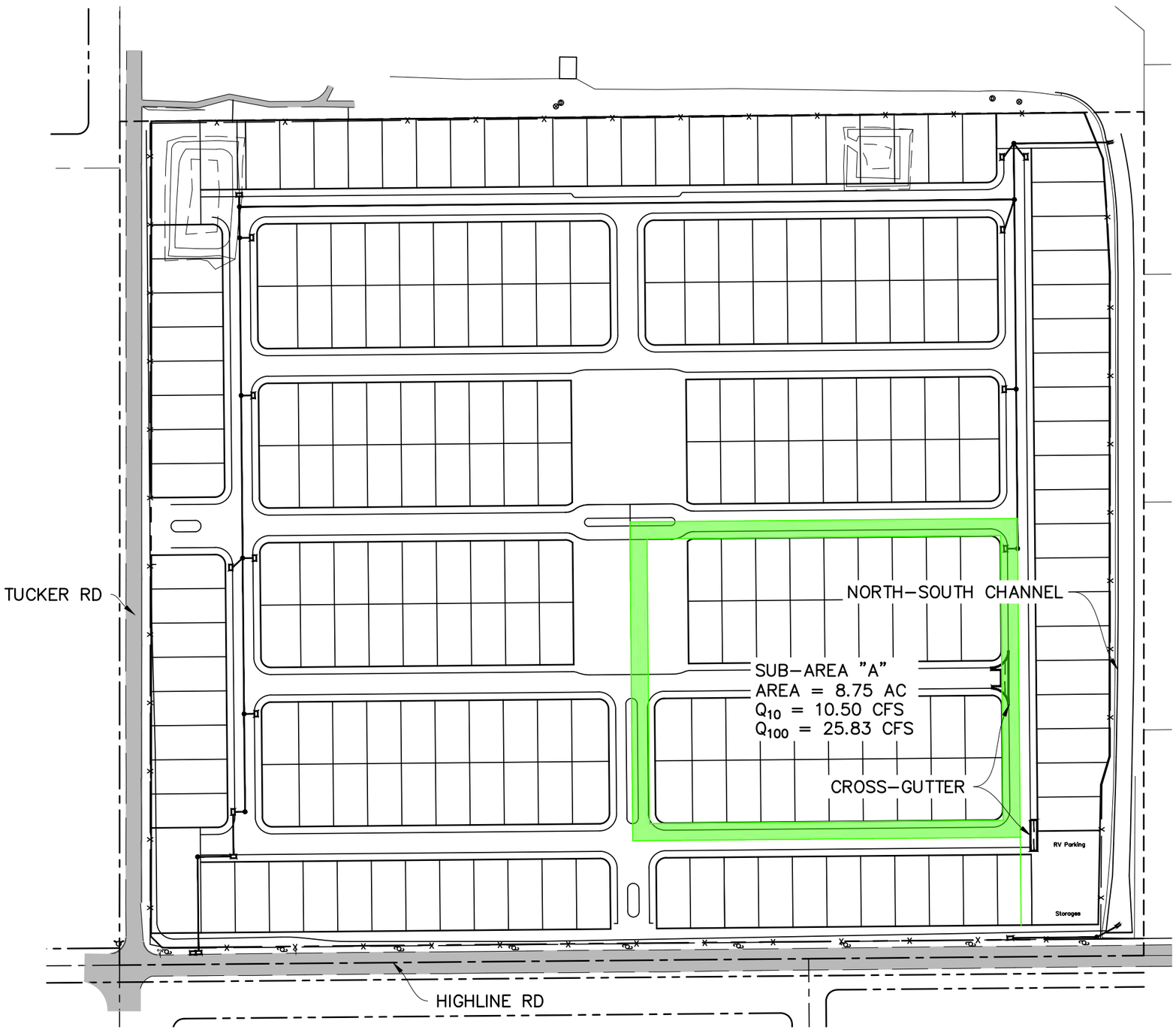
RCE 43130 EXP. 3/31/20

EXHIBIT "D" - HYDROLOGY AREA
CONSIDER AND COMPREHEND NATURE
HIGHLINE RD AND TUCKER RD
TEHACHAPI, CA

JOB No.:	19-871
DWG NO.:	EXHIBIT
DATE:	01/06/2020
DRAWN BY:	BMB
CHECKED BY:	MKV
SHEET	1
OF	1 SHEETS

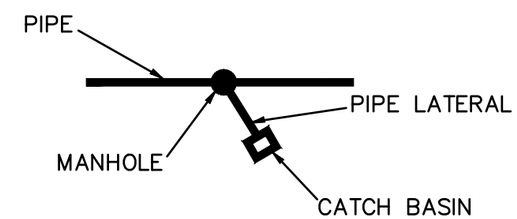
EXHIBIT "E" - SITE LAYOUT

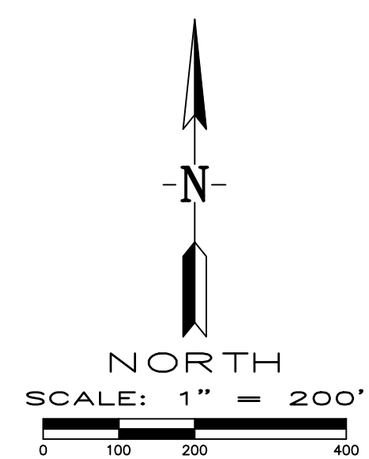


LEGEND:

- EXISTING ASPHALT CONCRETE PAVEMENT
- BOUNDARY LINE
- EXPANDED STREET RIGHT OF WAY
- EXISTING FENCE
- EXISTING STREET RIGHT OF WAY
- EXISTING ADJACENT LOT

PROPOSED STORM DRAIN SYSTEM





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CONSIDER AND COMPREHEND NATURE
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JOB No.:	19-871
DWG NO.:	EXHIBIT
DATE:	01/06/2020
DRAWN BY:	BMB
CHECKED BY:	MKV
SHEET	1 OF 1 SHEETS

APPENDIX “B”

Table 1

Off-Site Sub-Area Flow Calculations

Tehachapi On-Site Hydrology

Project Number: 16-760

Date: 1/6/2020

Created by: BMB

Sub-Area	Area (Acres)	Runoff Coefficient 10-yr	Intensity-Duration 10-yr	Runoff Coefficient 100-yr	Intensity-Duration 100-yr	Flow 10-yr (cfs)	Flow 100-yr (cfs)
B	49.0	1.65	0.65	3.72	0.77	52.55	140.36

Flow calculated using the Kern County Rational Method:

Q = CiA

where:

Q = Flow in cubic feet per second

C = Runoff Coefficient

i = Intensity-Duration

A = Area (area)

Table 2

On-Site Sub-Area Flow Calculations

Tehachapi On-Site Hydrology

Project Number: 16-760

Date: 1/6/2020

Created by: BMB

Sub-Area	Area (Acres)	Runoff Coefficient 10-yr	Intensity-Duration 10-yr	Runoff Coefficient 100-yr	Intensity-Duration 100-yr	Flow 10-yr (cfs)	Flow 100-yr (cfs)
A	8.8	1.60	0.72	3.60	0.82	10.08	25.83

Note:

Flow calculated using the Kern County Rational Method:

Q = CiA

where:

Q = Flow in cubic feet per second

C = Runoff Coefficient

i = Intensity-Duration

A = Area (area)

Catch Basin Inlet Capacity Calculations for Tract 7363

- All calculations use the highest 10-year flow rate

$Q_{max} = 10.08$ cfs

Weir Equation

$$Q = CLh^{3/2}$$

where

C = weir coefficient
L = Length of weir (ft)
h = head water (ft)

$$10.08 = (3.0)(6.0)h^{3/2}$$
$$h = 0.68'$$

- Since the headwater depth (0.68') is greater than the inlet height (0.33'), the inlet is submerged and must be calculated using the Orifice Equation.

Orifice Equation

$$Q = CA\sqrt{2gh}$$

where

C = Orifice Coefficient
A = Inlet Area (ft^2)
g = gravity (ft/s^2)
h = head water (ft)

$$10.08 = (0.9)(6 \cdot 0.33)\sqrt{2(32.2)h}$$
$$h = 0.49'$$

∴ A 6-foot wide catch basin is adequate to capture the maximum flow without overtopping the curb

CREW: BMTB	Phone: (661) 869-0184 Fax: (661) 377-0076 LAV Consulting & Engineering, Inc 5401 Business Park So., Suite 204, Bakersfield, CA. 93309 JOB DESC: Catch Basin Inlet Calc	JOB NO: 19-871 DATE: 1/6/20 SHEET: 1 OF 1

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jan 15 2020

East-West Native Material Lined Channel Hydrology

Trapezoidal

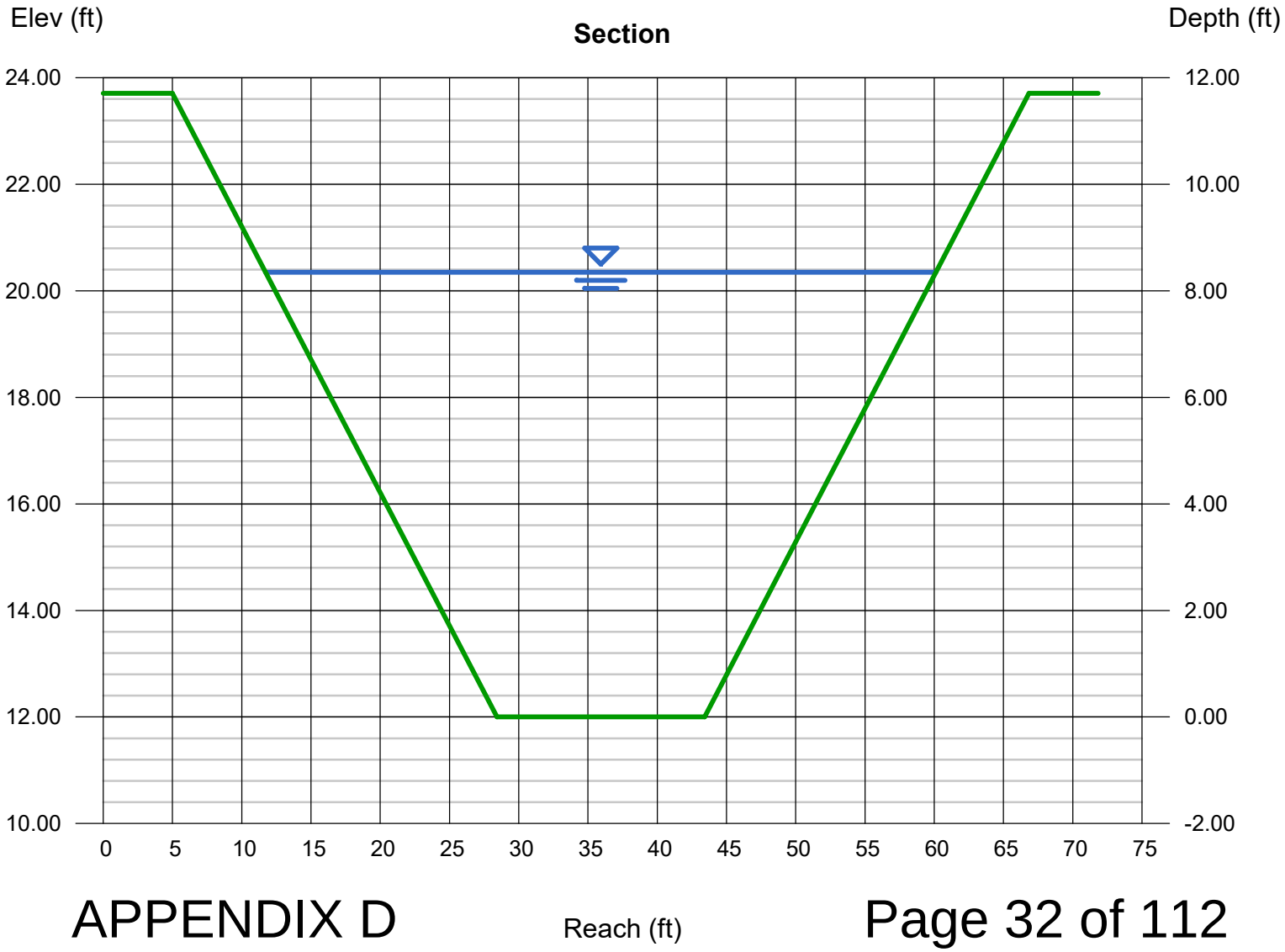
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 11.71
Invert Elev (ft)	= 12.00
Slope (%)	= 0.30
N-Value	= 0.033

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1922.00

Highlighted

Depth (ft)	= 8.35
Q (cfs)	= 1,922
Area (sqft)	= 264.70
Velocity (ft/s)	= 7.26
Wetted Perim (ft)	= 52.34
Crit Depth, Yc (ft)	= 6.09
Top Width (ft)	= 48.40
EGL (ft)	= 9.17



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jan 15 2020

East-West Concrete Lined Channel Hydrology

Trapezoidal

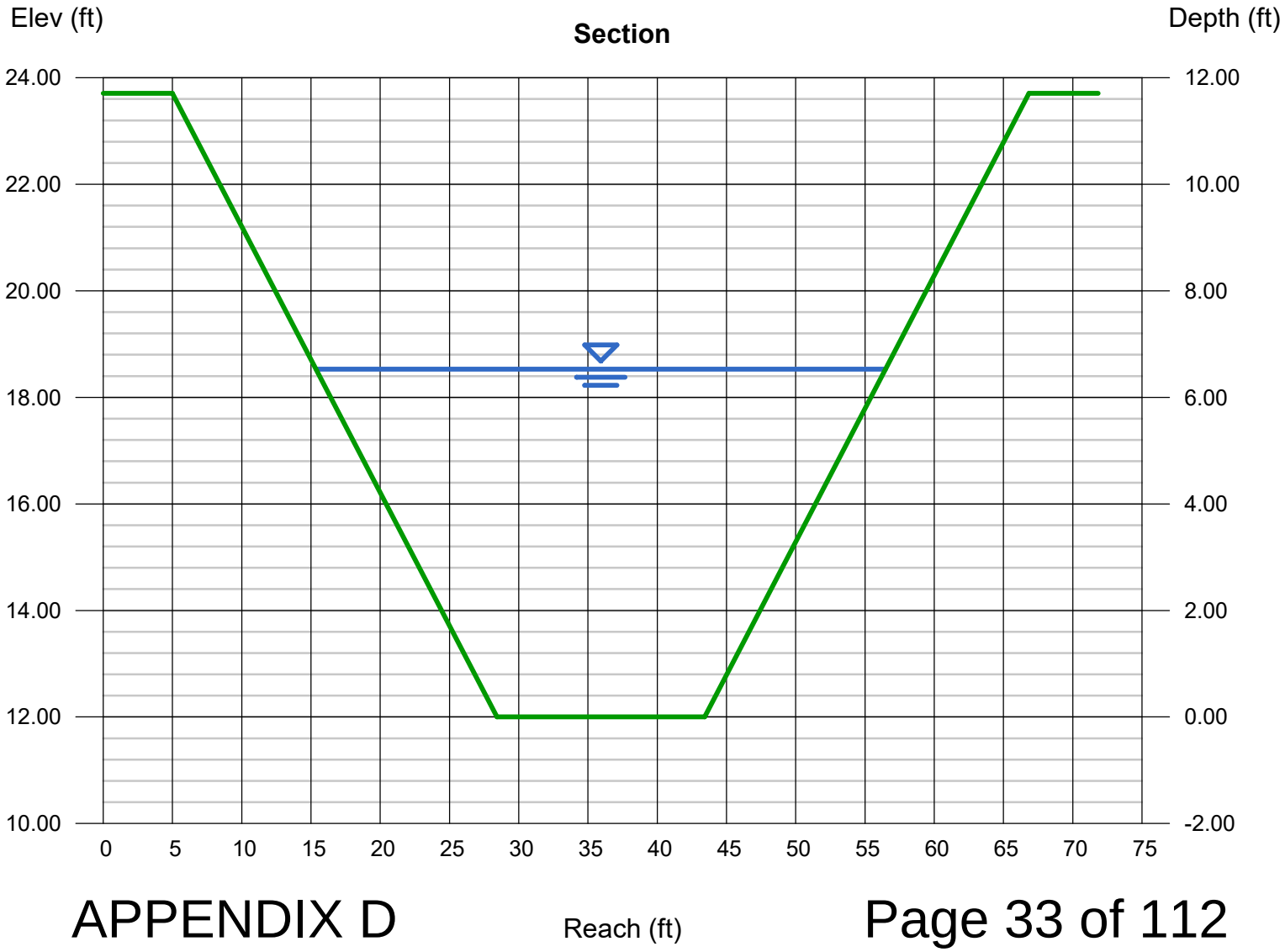
Bottom Width (ft)	=	15.00
Side Slopes (z:1)	=	2.00, 2.00
Total Depth (ft)	=	11.71
Invert Elev (ft)	=	12.00
Slope (%)	=	0.30
N-Value	=	0.020

Calculations

Compute by:		Known Q
Known Q (cfs)	=	1922.00

Highlighted

Depth (ft)	=	6.53
Q (cfs)	=	1,922
Area (sqft)	=	183.23
Velocity (ft/s)	=	10.49
Wetted Perim (ft)	=	44.20
Crit Depth, Yc (ft)	=	6.09
Top Width (ft)	=	41.12
EGL (ft)	=	8.24



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jan 15 2020

North-South Channel

Trapezoidal

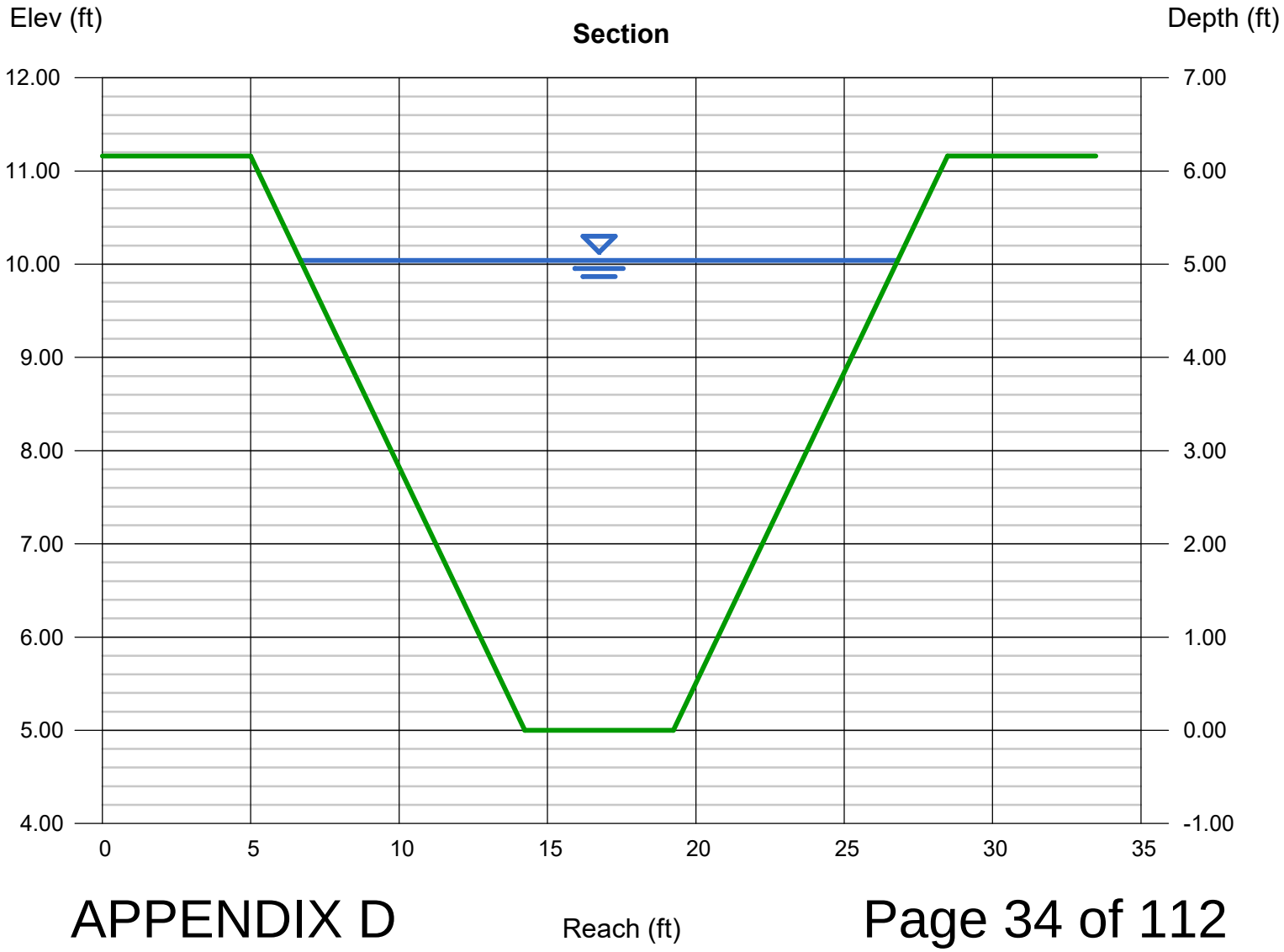
Bottom Width (ft)	= 5.00
Side Slopes (z:1)	= 1.50, 1.50
Total Depth (ft)	= 6.16
Invert Elev (ft)	= 5.00
Slope (%)	= 4.40
N-Value	= 0.020

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1922.00

Highlighted

Depth (ft)	= 5.04
Q (cfs)	= 1,922
Area (sqft)	= 63.30
Velocity (ft/s)	= 30.36
Wetted Perim (ft)	= 23.17
Crit Depth, Yc (ft)	= 6.16
Top Width (ft)	= 20.12
EGL (ft)	= 19.37



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jan 16 2020

Highline Road Crossing Box Culvert 100-year

Invert Elev Dn (ft)	=	65.50
Pipe Length (ft)	=	121.46
Slope (%)	=	0.67
Invert Elev Up (ft)	=	66.31
Rise (in)	=	72.0
Shape	=	Box
Span (in)	=	96.0
No. Barrels	=	3
n-Value	=	0.020
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

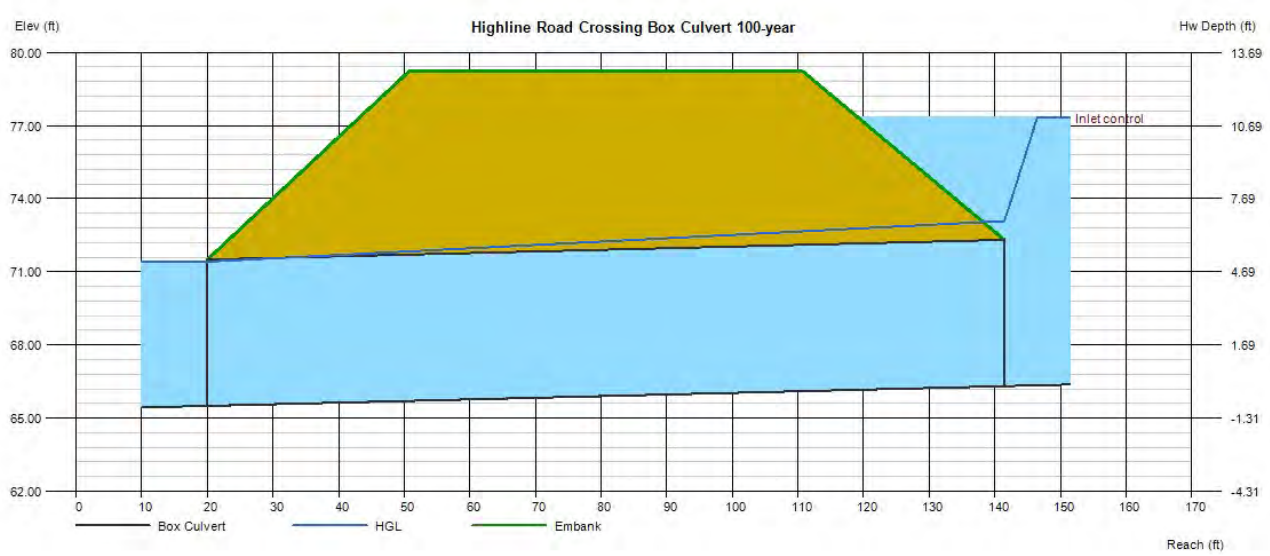
Top Elevation (ft)	=	79.22
Top Width (ft)	=	60.00
Crest Width (ft)	=	125.60

Calculations

Qmin (cfs)	=	1922.00
Qmax (cfs)	=	1922.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	1922.00
Qpipe (cfs)	=	1922.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	13.54
Veloc Up (ft/s)	=	13.35
HGL Dn (ft)	=	71.42
HGL Up (ft)	=	73.08
Hw Elev (ft)	=	77.33
Hw/D (ft)	=	1.84
Flow Regime	=	Inlet Control



APPENDIX “C”

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+
----------------------------------------------------------------------
-

Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

---------------------------------------------------------------------
---------------------------------------------------------------------

      Storm Event Year = 10

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
         356.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
         356.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
         356.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
         356.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0        356.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
   356.00   1.000         77.0         2.99     0.434

Area-averaged catchment yield fraction, Y =  0.434
Area-averaged low loss fraction, Yb =  0.566
User entry of time of concentration  =   0.630 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     356.00(Ac.)
Catchment Lag time =   0.504 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 66.1376
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.566 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.237(In)
Computed peak 30-minute rainfall =  0.532(In)
Specified peak 1-hour rainfall =  0.727(In)
Computed peak 3-hour rainfall =  1.285(In)
Specified peak 6-hour rainfall =  1.841(In)
Specified peak 24-hour rainfall =  3.779(In)


Rainfall depth area reduction factors:
Using a total area of     356.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.984     Adjusted rainfall =  0.234(In)
30-minute factor = 0.984    Adjusted rainfall =  0.523(In)
1-hour factor = 0.984       Adjusted rainfall =  0.715(In)
3-hour factor = 0.998       Adjusted rainfall =  1.282(In)
6-hour factor = 0.999       Adjusted rainfall =  1.839(In)
24-hour factor = 0.999      Adjusted rainfall =  3.776(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =      1076.34 (CFS))

  1               21.905                 235.774
  2               96.012                 797.644
  3              136.021                 430.639
  4              154.461                 198.471
```

5	165.822	122.289
6	173.866	86.585
7	179.631	62.048
8	184.204	49.219
9	187.855	39.303
10	190.855	32.287
11	193.111	24.283
12	195.627	27.073
13	196.687	11.410
14	197.634	10.196
15	198.215	6.251
16	198.561	3.727
17	198.907	3.727
18	199.253	3.727
19	200.000	8.036

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	2.85	0.24	0.23	0.234
2	1.95	0.32	0.32	0.086
3	1.56	0.39	0.38	0.064
4	1.33	0.44	0.44	0.053
5	1.18	0.49	0.48	0.046
6	1.06	0.53	0.52	0.041
7	0.98	0.57	0.56	0.038
8	0.91	0.61	0.60	0.035
9	0.85	0.64	0.63	0.032
10	0.80	0.67	0.66	0.031
11	0.76	0.70	0.69	0.029
12	0.73	0.73	0.72	0.027
13	0.70	0.76	0.75	0.031
14	0.67	0.79	0.78	0.030
15	0.65	0.82	0.81	0.029
16	0.63	0.84	0.83	0.028
17	0.61	0.87	0.86	0.027
18	0.60	0.90	0.89	0.027
19	0.58	0.92	0.91	0.026
20	0.57	0.95	0.94	0.025
21	0.56	0.97	0.96	0.025
22	0.54	1.00	0.99	0.024
23	0.53	1.02	1.01	0.024
24	0.52	1.04	1.03	0.023
25	0.51	1.06	1.06	0.023
26	0.50	1.09	1.08	0.022
27	0.49	1.11	1.10	0.022
28	0.48	1.13	1.12	0.021
29	0.48	1.15	1.14	0.021
30	0.47	1.17	1.16	0.021
31	0.46	1.19	1.18	0.020
32	0.45	1.21	1.20	0.020
33	0.45	1.23	1.22	0.020
34	0.44	1.25	1.24	0.020
35	0.43	1.27	1.26	0.019
36	0.43	1.28	1.28	0.019
37	0.42	1.30	1.30	0.018
38	0.42	1.32	1.32	0.018

39	0.41	1.34	1.34	0.018
40	0.41	1.36	1.35	0.018
41	0.40	1.37	1.37	0.018
42	0.40	1.39	1.39	0.017
43	0.39	1.41	1.41	0.017
44	0.39	1.43	1.42	0.017
45	0.38	1.44	1.44	0.017
46	0.38	1.46	1.46	0.017
47	0.38	1.48	1.47	0.016
48	0.37	1.49	1.49	0.016
49	0.37	1.51	1.50	0.016
50	0.37	1.52	1.52	0.016
51	0.36	1.54	1.54	0.016
52	0.36	1.55	1.55	0.016
53	0.36	1.57	1.57	0.015
54	0.35	1.59	1.58	0.015
55	0.35	1.60	1.60	0.015
56	0.35	1.62	1.61	0.015
57	0.34	1.63	1.63	0.015
58	0.34	1.65	1.64	0.015
59	0.34	1.66	1.66	0.015
60	0.33	1.67	1.67	0.015
61	0.33	1.69	1.69	0.014
62	0.33	1.70	1.70	0.014
63	0.33	1.72	1.72	0.014
64	0.32	1.73	1.73	0.014
65	0.32	1.75	1.74	0.014
66	0.32	1.76	1.76	0.014
67	0.32	1.77	1.77	0.014
68	0.32	1.79	1.78	0.014
69	0.31	1.80	1.80	0.014
70	0.31	1.81	1.81	0.014
71	0.31	1.83	1.83	0.013
72	0.31	1.84	1.84	0.013
73	0.30	1.85	1.85	0.013
74	0.30	1.87	1.86	0.013
75	0.30	1.88	1.88	0.013
76	0.30	1.89	1.89	0.013
77	0.30	1.90	1.90	0.013
78	0.30	1.92	1.92	0.013
79	0.29	1.93	1.93	0.013
80	0.29	1.94	1.94	0.013
81	0.29	1.96	1.95	0.013
82	0.29	1.97	1.97	0.012
83	0.29	1.98	1.98	0.012
84	0.28	1.99	1.99	0.012
85	0.28	2.01	2.00	0.012
86	0.28	2.02	2.02	0.012
87	0.28	2.03	2.03	0.012
88	0.28	2.04	2.04	0.012
89	0.28	2.05	2.05	0.012
90	0.28	2.07	2.06	0.012
91	0.27	2.08	2.08	0.012
92	0.27	2.09	2.09	0.012
93	0.27	2.10	2.10	0.012
94	0.27	2.11	2.11	0.012
95	0.27	2.12	2.12	0.012

96	0.27	2.14	2.13	0.012
97	0.27	2.15	2.15	0.012
98	0.26	2.16	2.16	0.011
99	0.26	2.17	2.17	0.011
100	0.26	2.18	2.18	0.011
101	0.26	2.19	2.19	0.011
102	0.26	2.20	2.20	0.011
103	0.26	2.22	2.21	0.011
104	0.26	2.23	2.23	0.011
105	0.26	2.24	2.24	0.011
106	0.25	2.25	2.25	0.011
107	0.25	2.26	2.26	0.011
108	0.25	2.27	2.27	0.011
109	0.25	2.28	2.28	0.011
110	0.25	2.29	2.29	0.011
111	0.25	2.30	2.30	0.011
112	0.25	2.31	2.31	0.011
113	0.25	2.32	2.32	0.011
114	0.25	2.33	2.33	0.011
115	0.24	2.35	2.34	0.011
116	0.24	2.36	2.36	0.011
117	0.24	2.37	2.37	0.011
118	0.24	2.38	2.38	0.010
119	0.24	2.39	2.39	0.010
120	0.24	2.40	2.40	0.010
121	0.24	2.41	2.41	0.010
122	0.24	2.42	2.42	0.010
123	0.24	2.43	2.43	0.010
124	0.24	2.44	2.44	0.010
125	0.24	2.45	2.45	0.010
126	0.23	2.46	2.46	0.010
127	0.23	2.47	2.47	0.010
128	0.23	2.48	2.48	0.010
129	0.23	2.49	2.49	0.010
130	0.23	2.50	2.50	0.010
131	0.23	2.51	2.51	0.010
132	0.23	2.52	2.52	0.010
133	0.23	2.53	2.53	0.010
134	0.23	2.54	2.54	0.010
135	0.23	2.55	2.55	0.010
136	0.23	2.56	2.56	0.010
137	0.22	2.57	2.57	0.010
138	0.22	2.58	2.58	0.010
139	0.22	2.59	2.59	0.010
140	0.22	2.60	2.60	0.010
141	0.22	2.61	2.61	0.010
142	0.22	2.62	2.62	0.010
143	0.22	2.63	2.63	0.010
144	0.22	2.64	2.63	0.010
145	0.22	2.65	2.64	0.009
146	0.22	2.65	2.65	0.009
147	0.22	2.66	2.66	0.009
148	0.22	2.67	2.67	0.009
149	0.22	2.68	2.68	0.009
150	0.22	2.69	2.69	0.009
151	0.21	2.70	2.70	0.009
152	0.21	2.71	2.71	0.009

153	0.21	2.72	2.72	0.009
154	0.21	2.73	2.73	0.009
155	0.21	2.74	2.74	0.009
156	0.21	2.75	2.75	0.009
157	0.21	2.76	2.76	0.009
158	0.21	2.77	2.77	0.009
159	0.21	2.77	2.77	0.009
160	0.21	2.78	2.78	0.009
161	0.21	2.79	2.79	0.009
162	0.21	2.80	2.80	0.009
163	0.21	2.81	2.81	0.009
164	0.21	2.82	2.82	0.009
165	0.21	2.83	2.83	0.009
166	0.21	2.84	2.84	0.009
167	0.20	2.85	2.85	0.009
168	0.20	2.86	2.85	0.009
169	0.20	2.86	2.86	0.009
170	0.20	2.87	2.87	0.009
171	0.20	2.88	2.88	0.009
172	0.20	2.89	2.89	0.009
173	0.20	2.90	2.90	0.009
174	0.20	2.91	2.91	0.009
175	0.20	2.92	2.92	0.009
176	0.20	2.93	2.92	0.009
177	0.20	2.93	2.93	0.009
178	0.20	2.94	2.94	0.009
179	0.20	2.95	2.95	0.009
180	0.20	2.96	2.96	0.009
181	0.20	2.97	2.97	0.009
182	0.20	2.98	2.98	0.008
183	0.20	2.98	2.98	0.008
184	0.20	2.99	2.99	0.008
185	0.19	3.00	3.00	0.008
186	0.19	3.01	3.01	0.008
187	0.19	3.02	3.02	0.008
188	0.19	3.03	3.03	0.008
189	0.19	3.04	3.03	0.008
190	0.19	3.04	3.04	0.008
191	0.19	3.05	3.05	0.008
192	0.19	3.06	3.06	0.008
193	0.19	3.07	3.07	0.008
194	0.19	3.08	3.08	0.008
195	0.19	3.08	3.08	0.008
196	0.19	3.09	3.09	0.008
197	0.19	3.10	3.10	0.008
198	0.19	3.11	3.11	0.008
199	0.19	3.12	3.12	0.008
200	0.19	3.13	3.12	0.008
201	0.19	3.13	3.13	0.008
202	0.19	3.14	3.14	0.008
203	0.19	3.15	3.15	0.008
204	0.19	3.16	3.16	0.008
205	0.19	3.17	3.17	0.008
206	0.18	3.17	3.17	0.008
207	0.18	3.18	3.18	0.008
208	0.18	3.19	3.19	0.008
209	0.18	3.20	3.20	0.008

210	0.18	3.21	3.21	0.008
211	0.18	3.21	3.21	0.008
212	0.18	3.22	3.22	0.008
213	0.18	3.23	3.23	0.008
214	0.18	3.24	3.24	0.008
215	0.18	3.25	3.24	0.008
216	0.18	3.25	3.25	0.008
217	0.18	3.26	3.26	0.008
218	0.18	3.27	3.27	0.008
219	0.18	3.28	3.28	0.008
220	0.18	3.28	3.28	0.008
221	0.18	3.29	3.29	0.008
222	0.18	3.30	3.30	0.008
223	0.18	3.31	3.31	0.008
224	0.18	3.31	3.31	0.008
225	0.18	3.32	3.32	0.008
226	0.18	3.33	3.33	0.008
227	0.18	3.34	3.34	0.008
228	0.18	3.35	3.34	0.008
229	0.18	3.35	3.35	0.008
230	0.18	3.36	3.36	0.008
231	0.17	3.37	3.37	0.008
232	0.17	3.38	3.38	0.008
233	0.17	3.38	3.38	0.008
234	0.17	3.39	3.39	0.008
235	0.17	3.40	3.40	0.008
236	0.17	3.41	3.41	0.007
237	0.17	3.41	3.41	0.007
238	0.17	3.42	3.42	0.007
239	0.17	3.43	3.43	0.007
240	0.17	3.44	3.44	0.007
241	0.17	3.44	3.44	0.007
242	0.17	3.45	3.45	0.007
243	0.17	3.46	3.46	0.007
244	0.17	3.47	3.46	0.007
245	0.17	3.47	3.47	0.007
246	0.17	3.48	3.48	0.007
247	0.17	3.49	3.49	0.007
248	0.17	3.49	3.49	0.007
249	0.17	3.50	3.50	0.007
250	0.17	3.51	3.51	0.007
251	0.17	3.52	3.52	0.007
252	0.17	3.52	3.52	0.007
253	0.17	3.53	3.53	0.007
254	0.17	3.54	3.54	0.007
255	0.17	3.55	3.55	0.007
256	0.17	3.55	3.55	0.007
257	0.17	3.56	3.56	0.007
258	0.17	3.57	3.57	0.007
259	0.17	3.57	3.57	0.007
260	0.17	3.58	3.58	0.007
261	0.16	3.59	3.59	0.007
262	0.16	3.60	3.60	0.007
263	0.16	3.60	3.60	0.007
264	0.16	3.61	3.61	0.007
265	0.16	3.62	3.62	0.007
266	0.16	3.62	3.62	0.007

267	0.16	3.63	3.63	0.007
268	0.16	3.64	3.64	0.007
269	0.16	3.65	3.64	0.007
270	0.16	3.65	3.65	0.007
271	0.16	3.66	3.66	0.007
272	0.16	3.67	3.67	0.007
273	0.16	3.67	3.67	0.007
274	0.16	3.68	3.68	0.007
275	0.16	3.69	3.69	0.007
276	0.16	3.69	3.69	0.007
277	0.16	3.70	3.70	0.007
278	0.16	3.71	3.71	0.007
279	0.16	3.71	3.71	0.007
280	0.16	3.72	3.72	0.007
281	0.16	3.73	3.73	0.007
282	0.16	3.74	3.74	0.007
283	0.16	3.74	3.74	0.007
284	0.16	3.75	3.75	0.007
285	0.16	3.76	3.76	0.007
286	0.16	3.76	3.76	0.007
287	0.16	3.77	3.77	0.007
288	0.16	3.78	3.78	0.007

Time = 24.00 Hours Total unit rainfall = 3.78(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0273	0.0155	0.0119
2	0.0276	0.0156	0.0120
3	0.0279	0.0158	0.0121
4	0.0282	0.0160	0.0123
5	0.0285	0.0161	0.0124
6	0.0288	0.0163	0.0125
7	0.0292	0.0165	0.0127
8	0.0295	0.0167	0.0128
9	0.0299	0.0169	0.0130
10	0.0302	0.0171	0.0131
11	0.0306	0.0173	0.0133
12	0.0310	0.0176	0.0135
13	0.0314	0.0178	0.0137
14	0.0319	0.0180	0.0138
15	0.0323	0.0183	0.0140
16	0.0328	0.0186	0.0142
17	0.0333	0.0188	0.0145
18	0.0338	0.0191	0.0147
19	0.0344	0.0194	0.0149
20	0.0349	0.0198	0.0152
21	0.0355	0.0201	0.0154
22	0.0362	0.0205	0.0157
23	0.0369	0.0208	0.0160
24	0.0376	0.0213	0.0163
25	0.0383	0.0217	0.0166
26	0.0391	0.0221	0.0170
27	0.0400	0.0226	0.0174
28	0.0409	0.0231	0.0178
29	0.0419	0.0237	0.0182

30	0.0430	0.0243	0.0187
31	0.0441	0.0250	0.0192
32	0.0454	0.0257	0.0197
33	0.0468	0.0265	0.0203
34	0.0483	0.0273	0.0210
35	0.0500	0.0283	0.0217
36	0.0518	0.0293	0.0225
37	0.0541	0.0306	0.0235
38	0.0565	0.0320	0.0245
39	0.0592	0.0335	0.0257
40	0.0625	0.0353	0.0271
41	0.0663	0.0375	0.0288
42	0.0709	0.0401	0.0308
43	0.0783	0.0443	0.0340
44	0.0859	0.0486	0.0373
45	0.0965	0.0546	0.0419
46	0.1127	0.0638	0.0489
47	0.1235	0.0699	0.0536
48	0.2368	0.1339	0.1028
49	0.3548	0.1447*	0.2101
50	0.1091	0.0617	0.0474
51	0.0841	0.0476	0.0365
52	0.0698	0.0395	0.0303
53	0.0617	0.0349	0.0268
54	0.0559	0.0316	0.0243
55	0.0514	0.0291	0.0223
56	0.0479	0.0271	0.0208
57	0.0451	0.0255	0.0196
58	0.0427	0.0242	0.0185
59	0.0407	0.0230	0.0177
60	0.0389	0.0220	0.0169
61	0.0374	0.0212	0.0162
62	0.0360	0.0204	0.0156
63	0.0348	0.0197	0.0151
64	0.0337	0.0191	0.0146
65	0.0327	0.0185	0.0142
66	0.0318	0.0180	0.0138
67	0.0309	0.0175	0.0134
68	0.0302	0.0171	0.0131
69	0.0294	0.0167	0.0128
70	0.0288	0.0163	0.0125
71	0.0281	0.0159	0.0122
72	0.0276	0.0156	0.0120
	3.7763	2.0804	1.6959

Total soil rain loss = 2.08(In)
Total effective rainfall = 1.70(In)
Peak flow rate in flood hydrograph = 251.83(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 20 Minute intervals ((CFS))

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    ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0     150.0     225.0     300.0
---------------------------------------------------------------------
  0+20       0.0771      2.80  Q         |         |         |         |
  0+40       0.4160     12.30  VQ        |         |         |         |
  1+ 0       0.8992     17.54  V Q       |         |         |         |
  1+20       1.4523     20.08  V Q       |         |         |         |
  1+40       2.0514     21.75  V Q       |         |         |         |
  2+ 0       2.6853     23.01   V Q      |         |         |         |
  2+20       3.3465     24.00  |V Q      |         |         |         |
  2+40       4.0312     24.86  |V Q      |         |         |         |
  3+ 0       4.7367     25.61  |V Q      |         |         |         |
  3+20       5.4611     26.29  | VQ      |         |         |         |
  3+40       6.2022     26.90  | VQ      |         |         |         |
  4+ 0       6.9612     27.55  | VQ      |         |         |         |
  4+20       7.7336     28.04  |  Q      |         |         |         |
  4+40       8.5193     28.52  |  Q      |         |         |         |
  5+ 0       9.3176     28.98  |  Q      |         |         |         |
  5+20      10.1280     29.42  |  QV     |         |         |         |
  5+40      10.9510     29.88  |  QV     |         |         |         |
  6+ 0      11.7872     30.35  |   Q     |         |         |         |
  6+20      12.6385     30.90  |   QV    |         |         |         |
  6+40      13.5030     31.38  |   QV    |         |         |         |
  7+ 0      14.3813     31.88  |   QV    |         |         |         |
  7+20      15.2740     32.41  |   Q V   |         |         |         |
  7+40      16.1820     32.96  |   Q V   |         |         |         |
  8+ 0      17.1061     33.54  |   Q V   |         |         |         |
  8+20      18.0472     34.16  |   Q  V  |         |         |         |
  8+40      19.0063     34.82  |   Q  V  |         |         |         |
  9+ 0      19.9846     35.51  |   Q  V  |         |         |         |
  9+20      20.9832     36.25  |   Q   V |         |         |         |
  9+40      22.0036     37.04  |   Q   V |         |         |         |
 10+ 0      23.0474     37.89  |    Q   V|         |         |         |
 10+20      24.1161     38.80  |    Q   V|         |         |         |
 10+40      25.2120     39.78  |    Q    V         |         |         |
 11+ 0      26.3371     40.84  |    Q    V         |         |         |
 11+20      27.4940     42.00  |    Q    V         |         |         |
 11+40      28.6859     43.26  |    Q    |V        |         |         |
 12+ 0      29.9162     44.66  |    Q    |V        |         |         |
 12+20      31.1894     46.22  |     Q   | V       |         |         |
 12+40      32.5116     48.00  |     Q   | V       |         |         |
 13+ 0      33.8882     49.97  |     Q   |  V      |         |         |
 13+20      35.3264     52.21  |     Q   |   V     |         |         |
 13+40      36.8356     54.79  |      Q  |   V     |         |         |
 14+ 0      38.4284     57.82  |      Q  |    V    |         |         |
 14+20      40.1257     61.61  |       Q |    V    |         |         |
 14+40      41.9616     66.64  |       Q |     V   |         |         |
 15+ 0      43.9649     72.72  |        Q|      V  |         |         |
 15+20      46.1902     80.78  |         Q       V |         |         |
 15+40      48.6977     91.02  |         | Q      V|         |         |
 16+ 0      51.7654    111.36  |         |   Q     V         |         |
 16+20      56.7418    180.64  |         |         | V Q     |         |
 16+40      63.6791    251.83  |         |         |    V    |  Q      |
 17+ 0      68.5653    177.37  |         |         |  Q   V  |         |
 17+20      72.0346    125.93  |         |     Q   |       V |         |
 17+40      74.8355    101.67  |         |  Q      |        V|         |
 18+ 0      77.2258     86.77  |         |Q        |         V         |
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  18+20      79.3170     75.91  |         Q         |          V        |
  18+40      81.1954     68.18  |        Q|         |         | V       |
  19+ 0      82.9018     61.94  |       Q |         |         | V       |
  19+20      84.4644     56.72  |      Q  |         |         |  V      |
  19+40      85.9063     52.34  |     Q   |         |         |   V     |
  20+ 0      87.2604     49.16  |     Q   |         |         |   V     |
  20+20      88.4756     44.11  |    Q    |         |         |    V    |
  20+40      89.6184     41.48  |    Q    |         |         |    V    |
  21+ 0      90.6883     38.84  |    Q    |         |         |     V   |
  21+20      91.7020     36.80  |   Q     |         |         |     V   |
  21+40      92.6757     35.34  |   Q     |         |         |     V   |
  22+ 0      93.6190     34.24  |   Q     |         |         |      V  |
  22+20      94.5376     33.34  |   Q     |         |         |      V  |
  22+40      95.3913     30.99  |   Q     |         |         |      V  |
  23+ 0      96.2171     29.98  |  Q      |         |         |       V |
  23+20      97.0187     29.10  |  Q      |         |         |       V |
  23+40      97.7987     28.32  |  Q      |         |         |       V |
  24+ 0      98.5591     27.60  |  Q      |         |         |        V|
  24+20      99.2253     24.18  |  Q      |         |         |        V|
  24+40      99.6185     14.28  |Q        |         |         |        V|
  25+ 0      99.8635      8.89  |Q        |         |         |        V|
  25+20     100.0384      6.35  Q         |         |         |        V|
  25+40     100.1696      4.76  Q         |         |         |        V|
  26+ 0     100.2697      3.63  Q         |         |         |        V|
  26+20     100.3474      2.82  Q         |         |         |        V|
  26+40     100.4073      2.18  Q         |         |         |        V|
  27+ 0     100.4532      1.66  Q         |         |         |        V|
  27+20     100.4876      1.25  Q         |         |         |        V|
  27+40     100.5133      0.93  Q         |         |         |        V|
  28+ 0     100.5298      0.60  Q         |         |         |        V|
  28+20     100.5422      0.45  Q         |         |         |        V|
  28+40     100.5510      0.32  Q         |         |         |        V|
  29+ 0     100.5576      0.24  Q         |         |         |        V|
  29+20     100.5628      0.19  Q         |         |         |        V|
  29+40     100.5667      0.14  Q         |         |         |        V|
  30+ 0     100.5694      0.10  Q         |         |         |         V
-----------------------------------------------------------------------
```

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

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+
----------------------------------------------------------------------
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Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

---------------------------------------------------------------------
---------------------------------------------------------------------

      Storm Event Year = 100

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
         356.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
         356.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
         356.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
         356.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0        356.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
   356.00   1.000         77.0         2.99     0.588

Area-averaged catchment yield fraction, Y =  0.588
Area-averaged low loss fraction, Yb =  0.412
User entry of time of concentration  =   0.630 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     356.00(Ac.)
Catchment Lag time =   0.504 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 66.1376
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.412 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.378(In)
Computed peak 30-minute rainfall =  0.846(In)
Specified peak 1-hour rainfall =  1.155(In)
Computed peak 3-hour rainfall =  1.962(In)
Specified peak 6-hour rainfall =  2.740(In)
Specified peak 24-hour rainfall =  6.160(In)


Rainfall depth area reduction factors:
Using a total area of     356.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.984     Adjusted rainfall =  0.372(In)
30-minute factor = 0.984    Adjusted rainfall =  0.832(In)
1-hour factor = 0.984       Adjusted rainfall =  1.137(In)
3-hour factor = 0.998       Adjusted rainfall =  1.957(In)
6-hour factor = 0.999       Adjusted rainfall =  2.737(In)
24-hour factor = 0.999      Adjusted rainfall =  6.156(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =      1076.34 (CFS))

  1               21.905                 235.774
  2               96.012                 797.644
  3              136.021                 430.639
  4              154.461                 198.471
```

5	165.822	122.289
6	173.866	86.585
7	179.631	62.048
8	184.204	49.219
9	187.855	39.303
10	190.855	32.287
11	193.111	24.283
12	195.627	27.073
13	196.687	11.410
14	197.634	10.196
15	198.215	6.251
16	198.561	3.727
17	198.907	3.727
18	199.253	3.727
19	200.000	8.036

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	4.53	0.38	0.37	0.372
2	3.10	0.52	0.51	0.136
3	2.48	0.62	0.61	0.102
4	2.11	0.70	0.69	0.084
5	1.87	0.78	0.77	0.073
6	1.69	0.85	0.83	0.066
7	1.55	0.91	0.89	0.060
8	1.44	0.96	0.95	0.055
9	1.35	1.02	1.00	0.052
10	1.28	1.06	1.05	0.049
11	1.21	1.11	1.09	0.046
12	1.16	1.16	1.14	0.044
13	1.11	1.20	1.18	0.046
14	1.07	1.24	1.23	0.044
15	1.03	1.29	1.27	0.043
16	1.00	1.33	1.31	0.041
17	0.96	1.37	1.35	0.040
18	0.94	1.40	1.39	0.039
19	0.91	1.44	1.43	0.038
20	0.89	1.48	1.46	0.037
21	0.86	1.51	1.50	0.036
22	0.84	1.55	1.53	0.035
23	0.82	1.58	1.57	0.034
24	0.81	1.61	1.60	0.033
25	0.79	1.65	1.63	0.033
26	0.77	1.68	1.67	0.032
27	0.76	1.71	1.70	0.031
28	0.74	1.74	1.73	0.031
29	0.73	1.77	1.76	0.030
30	0.72	1.80	1.79	0.030
31	0.71	1.83	1.82	0.029
32	0.70	1.85	1.85	0.029
33	0.68	1.88	1.87	0.028
34	0.67	1.91	1.90	0.028
35	0.66	1.94	1.93	0.027
36	0.65	1.96	1.96	0.027
37	0.64	1.99	1.98	0.026
38	0.64	2.01	2.01	0.026

39	0.63	2.04	2.03	0.025
40	0.62	2.06	2.06	0.025
41	0.61	2.09	2.08	0.025
42	0.60	2.11	2.11	0.024
43	0.60	2.14	2.13	0.024
44	0.59	2.16	2.16	0.024
45	0.58	2.18	2.18	0.024
46	0.58	2.21	2.20	0.023
47	0.57	2.23	2.23	0.023
48	0.56	2.25	2.25	0.023
49	0.56	2.28	2.27	0.023
50	0.55	2.30	2.29	0.022
51	0.55	2.32	2.32	0.022
52	0.54	2.34	2.34	0.022
53	0.54	2.36	2.36	0.022
54	0.53	2.39	2.38	0.021
55	0.53	2.41	2.40	0.021
56	0.52	2.43	2.42	0.021
57	0.52	2.45	2.44	0.021
58	0.51	2.47	2.47	0.021
59	0.51	2.49	2.49	0.020
60	0.50	2.51	2.51	0.020
61	0.50	2.53	2.53	0.020
62	0.49	2.55	2.55	0.020
63	0.49	2.57	2.57	0.020
64	0.49	2.59	2.59	0.020
65	0.48	2.61	2.60	0.019
66	0.48	2.63	2.62	0.019
67	0.47	2.65	2.64	0.019
68	0.47	2.67	2.66	0.019
69	0.47	2.68	2.68	0.019
70	0.46	2.70	2.70	0.019
71	0.46	2.72	2.72	0.019
72	0.46	2.74	2.74	0.018
73	0.45	2.76	2.76	0.022
74	0.45	2.78	2.78	0.022
75	0.45	2.80	2.80	0.022
76	0.45	2.83	2.82	0.022
77	0.44	2.85	2.85	0.022
78	0.44	2.87	2.87	0.022
79	0.44	2.89	2.89	0.021
80	0.44	2.91	2.91	0.021
81	0.43	2.93	2.93	0.021
82	0.43	2.95	2.95	0.021
83	0.43	2.98	2.97	0.021
84	0.43	3.00	2.99	0.021
85	0.43	3.02	3.02	0.021
86	0.42	3.04	3.04	0.021
87	0.42	3.06	3.06	0.021
88	0.42	3.08	3.08	0.020
89	0.42	3.10	3.10	0.020
90	0.42	3.12	3.12	0.020
91	0.41	3.14	3.14	0.020
92	0.41	3.16	3.16	0.020
93	0.41	3.18	3.18	0.020
94	0.41	3.20	3.20	0.020
95	0.41	3.22	3.22	0.020

96	0.40	3.24	3.24	0.020
97	0.40	3.26	3.26	0.020
98	0.40	3.28	3.28	0.020
99	0.40	3.30	3.30	0.020
100	0.40	3.32	3.32	0.019
101	0.40	3.34	3.34	0.019
102	0.39	3.36	3.35	0.019
103	0.39	3.38	3.37	0.019
104	0.39	3.39	3.39	0.019
105	0.39	3.41	3.41	0.019
106	0.39	3.43	3.43	0.019
107	0.39	3.45	3.45	0.019
108	0.39	3.47	3.47	0.019
109	0.38	3.49	3.49	0.019
110	0.38	3.51	3.51	0.019
111	0.38	3.53	3.52	0.019
112	0.38	3.54	3.54	0.019
113	0.38	3.56	3.56	0.018
114	0.38	3.58	3.58	0.018
115	0.38	3.60	3.60	0.018
116	0.37	3.62	3.62	0.018
117	0.37	3.64	3.64	0.018
118	0.37	3.65	3.65	0.018
119	0.37	3.67	3.67	0.018
120	0.37	3.69	3.69	0.018
121	0.37	3.71	3.71	0.018
122	0.37	3.73	3.73	0.018
123	0.37	3.74	3.74	0.018
124	0.36	3.76	3.76	0.018
125	0.36	3.78	3.78	0.018
126	0.36	3.80	3.80	0.018
127	0.36	3.82	3.81	0.018
128	0.36	3.83	3.83	0.018
129	0.36	3.85	3.85	0.017
130	0.36	3.87	3.87	0.017
131	0.36	3.88	3.88	0.017
132	0.35	3.90	3.90	0.017
133	0.35	3.92	3.92	0.017
134	0.35	3.94	3.94	0.017
135	0.35	3.95	3.95	0.017
136	0.35	3.97	3.97	0.017
137	0.35	3.99	3.99	0.017
138	0.35	4.00	4.00	0.017
139	0.35	4.02	4.02	0.017
140	0.35	4.04	4.04	0.017
141	0.35	4.06	4.05	0.017
142	0.34	4.07	4.07	0.017
143	0.34	4.09	4.09	0.017
144	0.34	4.11	4.10	0.017
145	0.34	4.12	4.12	0.017
146	0.34	4.14	4.14	0.017
147	0.34	4.16	4.15	0.017
148	0.34	4.17	4.17	0.017
149	0.34	4.19	4.19	0.016
150	0.34	4.20	4.20	0.016
151	0.34	4.22	4.22	0.016
152	0.33	4.24	4.24	0.016

153	0.33	4.25	4.25	0.016
154	0.33	4.27	4.27	0.016
155	0.33	4.29	4.28	0.016
156	0.33	4.30	4.30	0.016
157	0.33	4.32	4.32	0.016
158	0.33	4.33	4.33	0.016
159	0.33	4.35	4.35	0.016
160	0.33	4.37	4.37	0.016
161	0.33	4.38	4.38	0.016
162	0.33	4.40	4.40	0.016
163	0.32	4.41	4.41	0.016
164	0.32	4.43	4.43	0.016
165	0.32	4.45	4.44	0.016
166	0.32	4.46	4.46	0.016
167	0.32	4.48	4.48	0.016
168	0.32	4.49	4.49	0.016
169	0.32	4.51	4.51	0.016
170	0.32	4.52	4.52	0.016
171	0.32	4.54	4.54	0.016
172	0.32	4.56	4.55	0.015
173	0.32	4.57	4.57	0.015
174	0.32	4.59	4.58	0.015
175	0.32	4.60	4.60	0.015
176	0.31	4.62	4.62	0.015
177	0.31	4.63	4.63	0.015
178	0.31	4.65	4.65	0.015
179	0.31	4.66	4.66	0.015
180	0.31	4.68	4.68	0.015
181	0.31	4.69	4.69	0.015
182	0.31	4.71	4.71	0.015
183	0.31	4.72	4.72	0.015
184	0.31	4.74	4.74	0.015
185	0.31	4.75	4.75	0.015
186	0.31	4.77	4.77	0.015
187	0.31	4.78	4.78	0.015
188	0.31	4.80	4.80	0.015
189	0.31	4.81	4.81	0.015
190	0.30	4.83	4.83	0.015
191	0.30	4.84	4.84	0.015
192	0.30	4.86	4.86	0.015
193	0.30	4.87	4.87	0.015
194	0.30	4.89	4.89	0.015
195	0.30	4.90	4.90	0.015
196	0.30	4.92	4.92	0.015
197	0.30	4.93	4.93	0.015
198	0.30	4.95	4.94	0.015
199	0.30	4.96	4.96	0.015
200	0.30	4.97	4.97	0.015
201	0.30	4.99	4.99	0.015
202	0.30	5.00	5.00	0.014
203	0.30	5.02	5.02	0.014
204	0.30	5.03	5.03	0.014
205	0.30	5.05	5.05	0.014
206	0.29	5.06	5.06	0.014
207	0.29	5.08	5.07	0.014
208	0.29	5.09	5.09	0.014
209	0.29	5.10	5.10	0.014

210	0.29	5.12	5.12	0.014
211	0.29	5.13	5.13	0.014
212	0.29	5.15	5.15	0.014
213	0.29	5.16	5.16	0.014
214	0.29	5.18	5.17	0.014
215	0.29	5.19	5.19	0.014
216	0.29	5.20	5.20	0.014
217	0.29	5.22	5.22	0.014
218	0.29	5.23	5.23	0.014
219	0.29	5.25	5.24	0.014
220	0.29	5.26	5.26	0.014
221	0.29	5.27	5.27	0.014
222	0.29	5.29	5.29	0.014
223	0.29	5.30	5.30	0.014
224	0.28	5.32	5.31	0.014
225	0.28	5.33	5.33	0.014
226	0.28	5.34	5.34	0.014
227	0.28	5.36	5.36	0.014
228	0.28	5.37	5.37	0.014
229	0.28	5.38	5.38	0.014
230	0.28	5.40	5.40	0.014
231	0.28	5.41	5.41	0.014
232	0.28	5.43	5.42	0.014
233	0.28	5.44	5.44	0.014
234	0.28	5.45	5.45	0.014
235	0.28	5.47	5.47	0.014
236	0.28	5.48	5.48	0.014
237	0.28	5.49	5.49	0.014
238	0.28	5.51	5.51	0.014
239	0.28	5.52	5.52	0.014
240	0.28	5.53	5.53	0.013
241	0.28	5.55	5.55	0.013
242	0.28	5.56	5.56	0.013
243	0.28	5.57	5.57	0.013
244	0.27	5.59	5.59	0.013
245	0.27	5.60	5.60	0.013
246	0.27	5.61	5.61	0.013
247	0.27	5.63	5.63	0.013
248	0.27	5.64	5.64	0.013
249	0.27	5.65	5.65	0.013
250	0.27	5.67	5.67	0.013
251	0.27	5.68	5.68	0.013
252	0.27	5.69	5.69	0.013
253	0.27	5.71	5.71	0.013
254	0.27	5.72	5.72	0.013
255	0.27	5.73	5.73	0.013
256	0.27	5.75	5.75	0.013
257	0.27	5.76	5.76	0.013
258	0.27	5.77	5.77	0.013
259	0.27	5.79	5.79	0.013
260	0.27	5.80	5.80	0.013
261	0.27	5.81	5.81	0.013
262	0.27	5.83	5.82	0.013
263	0.27	5.84	5.84	0.013
264	0.27	5.85	5.85	0.013
265	0.27	5.86	5.86	0.013
266	0.27	5.88	5.88	0.013

267	0.26	5.89	5.89	0.013
268	0.26	5.90	5.90	0.013
269	0.26	5.92	5.91	0.013
270	0.26	5.93	5.93	0.013
271	0.26	5.94	5.94	0.013
272	0.26	5.95	5.95	0.013
273	0.26	5.97	5.97	0.013
274	0.26	5.98	5.98	0.013
275	0.26	5.99	5.99	0.013
276	0.26	6.00	6.00	0.013
277	0.26	6.02	6.02	0.013
278	0.26	6.03	6.03	0.013
279	0.26	6.04	6.04	0.013
280	0.26	6.06	6.06	0.013
281	0.26	6.07	6.07	0.013
282	0.26	6.08	6.08	0.013
283	0.26	6.09	6.09	0.013
284	0.26	6.11	6.11	0.013
285	0.26	6.12	6.12	0.013
286	0.26	6.13	6.13	0.013
287	0.26	6.14	6.14	0.013
288	0.26	6.16	6.16	0.013

Time = 24.00 Hours Total unit rainfall = 6.16(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0502	0.0207	0.0295
2	0.0506	0.0209	0.0297
3	0.0511	0.0211	0.0300
4	0.0515	0.0213	0.0303
5	0.0520	0.0215	0.0306
6	0.0525	0.0217	0.0309
7	0.0531	0.0219	0.0312
8	0.0536	0.0221	0.0315
9	0.0542	0.0223	0.0318
10	0.0547	0.0226	0.0322
11	0.0553	0.0228	0.0325
12	0.0560	0.0231	0.0329
13	0.0566	0.0233	0.0333
14	0.0573	0.0236	0.0337
15	0.0580	0.0239	0.0341
16	0.0587	0.0242	0.0345
17	0.0595	0.0245	0.0349
18	0.0603	0.0249	0.0354
19	0.0611	0.0252	0.0359
20	0.0620	0.0256	0.0364
21	0.0629	0.0260	0.0370
22	0.0639	0.0264	0.0375
23	0.0649	0.0268	0.0381
24	0.0660	0.0272	0.0388
25	0.0672	0.0277	0.0395
26	0.0684	0.0282	0.0402
27	0.0697	0.0287	0.0409
28	0.0711	0.0293	0.0417
29	0.0725	0.0299	0.0426

30	0.0741	0.0306	0.0436
31	0.0759	0.0313	0.0446
32	0.0777	0.0321	0.0457
33	0.0798	0.0329	0.0469
34	0.0820	0.0338	0.0482
35	0.0845	0.0348	0.0496
36	0.0872	0.0360	0.0512
37	0.0749	0.0309	0.0440
38	0.0785	0.0324	0.0461
39	0.0826	0.0341	0.0485
40	0.0875	0.0361	0.0514
41	0.0932	0.0385	0.0548
42	0.1003	0.0414	0.0589
43	0.1116	0.0460	0.0656
44	0.1233	0.0509	0.0725
45	0.1398	0.0577	0.0821
46	0.1653	0.0682	0.0971
47	0.1964	0.0810	0.1154
48	0.3765	0.1447*	0.2318
49	0.5642	0.1447*	0.4195
50	0.1596	0.0658	0.0938
51	0.1205	0.0497	0.0708
52	0.0986	0.0407	0.0579
53	0.0863	0.0356	0.0507
54	0.0776	0.0320	0.0456
55	0.0865	0.0357	0.0508
56	0.0814	0.0336	0.0479
57	0.0773	0.0319	0.0454
58	0.0737	0.0304	0.0433
59	0.0707	0.0292	0.0415
60	0.0681	0.0281	0.0400
61	0.0657	0.0271	0.0386
62	0.0637	0.0263	0.0374
63	0.0618	0.0255	0.0363
64	0.0601	0.0248	0.0353
65	0.0585	0.0241	0.0344
66	0.0571	0.0236	0.0336
67	0.0558	0.0230	0.0328
68	0.0546	0.0225	0.0321
69	0.0535	0.0221	0.0314
70	0.0524	0.0216	0.0308
71	0.0514	0.0212	0.0302
72	0.0505	0.0208	0.0297
	6.1556	2.4403	3.7153

Total soil rain loss = 2.44(In)
Total effective rainfall = 3.72(In)
Peak flow rate in flood hydrograph = 515.03(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 20 Minute intervals ((CFS))

```
    ----------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      150.0     300.0     450.0     600.0
----------------------------------------------------------------------
  0+20       0.1915      6.95  Q         |         |         |         |
  0+40       1.0323     30.52  V Q       |         |         |         |
  1+ 0       2.2304     43.49  V Q       |         |         |         |
  1+20       3.6005     49.73  V  Q      |         |         |         |
  1+40       5.0824     53.79  V  Q      |         |         |         |
  2+ 0       6.6486     56.85   V Q      |         |         |         |
  2+20       8.2800     59.22  |V Q      |         |         |         |
  2+40       9.9674     61.25  |V  Q     |         |         |         |
  3+ 0      11.7034     63.02  | V Q     |         |         |         |
  3+20      13.4833     64.61  | V Q     |         |         |         |
  3+40      15.3014     66.00  | V Q     |         |         |         |
  4+ 0      17.1609     67.50  |  VQ     |         |         |         |
  4+20      19.0499     68.57  |  VQ     |         |         |         |
  4+40      20.9683     69.64  |  VQ     |         |         |         |
  5+ 0      22.9139     70.62  |   Q     |         |         |         |
  5+20      24.8854     71.57  |   Q     |         |         |         |
  5+40      26.8840     72.55  |   Q     |         |         |         |
  6+ 0      28.9105     73.56  |   QV    |         |         |         |
  6+20      30.9698     74.75  |   QV    |         |         |         |
  6+40      33.0565     75.75  |    QV   |         |         |         |
  7+ 0      35.1718     76.79  |    QV   |         |         |         |
  7+20      37.3172     77.88  |    QV   |         |         |         |
  7+40      39.4943     79.03  |    Q V  |         |         |         |
  8+ 0      41.7046     80.23  |    Q V  |         |         |         |
  8+20      43.9500     81.51  |    Q V  |         |         |         |
  8+40      46.2325     82.85  |    Q  V |         |         |         |
  9+ 0      48.5542     84.28  |    Q  V |         |         |         |
  9+20      50.9177     85.79  |    Q   V|         |         |         |
  9+40      53.3255     87.40  |    Q   V|         |         |         |
 10+ 0      55.7807     89.12  |    Q    V         |         |         |
 10+20      58.2867     90.97  |     Q   V         |         |         |
 10+40      60.8473     92.95  |     Q    V        |         |         |
 11+ 0      63.4669     95.09  |     Q   |V        |         |         |
 11+20      66.1503     97.41  |     Q   | V       |         |         |
 11+40      68.9034     99.94  |     Q   | V       |         |         |
 12+ 0      71.7329    102.71  |     Q   |  V      |         |         |
 12+20      74.5881    103.64  |     Q   |  V      |         |         |
 12+40      77.3396     99.88  |     Q   |   V     |         |         |
 13+ 0      80.0918     99.90  |     Q   |   V     |         |         |
 13+20      82.9183    102.60  |     Q   |    V    |         |         |
 13+40      85.8581    106.71  |      Q  |    V    |         |         |
 14+ 0      88.9462    112.10  |      Q  |     V   |         |         |
 14+20      92.2331    119.31  |      Q  |     V   |         |         |
 14+40      95.7934    129.24  |       Q |      V  |         |         |
 15+ 0      99.6917    141.51  |        Q|       V |         |         |
 15+20     104.0477    158.12  |         Q       V |         |         |
 15+40     109.0483    181.52  |         | Q      V|         |         |
 16+ 0     115.4908    233.87  |         |    Q    V         |         |
 16+20     126.0843    384.54  |         |         | V  Q    |         |
 16+40     140.2725    515.03  |         |         |    V    |   Q     |
 17+ 0     150.1559    358.77  |         |         |  Q   V  |         |
 17+20     157.1083    252.37  |         |     Q   |       V |         |
 17+40     162.6653    201.72  |         |  Q      |        V|         |
 18+ 0     167.3629    170.52  |         |Q        |         V         |
```

```
18+20     171.4983    150.11  |         Q         |          V        |
18+40     175.3944    141.43  |        Q|         |         |V        |
19+ 0     179.0453    132.53  |       Q |         |         | V       |
19+20     182.4510    123.63  |       Q |         |         |  V      |
19+40     185.6419    115.83  |      Q  |         |         |  V      |
20+ 0     188.6649    109.73  |      Q  |         |         |   V     |
20+20     191.4211    100.05  |     Q   |         |         |   V     |
20+40     194.0388     95.02  |     Q   |         |         |    V    |
21+ 0     196.5163     89.93  |    Q    |         |         |    V    |
21+20     198.8873     86.07  |    Q    |         |         |     V   |
21+40     201.1828     83.33  |    Q    |         |         |     V   |
22+ 0     203.4236     81.34  |    Q    |         |         |     V   |
22+20     205.6094     79.35  |    Q    |         |         |      V  |
22+40     207.6656     74.64  |   Q     |         |         |      V  |
23+ 0     209.6651     72.58  |   Q     |         |         |       V |
23+20     211.6149     70.78  |   Q     |         |         |       V |
23+40     213.5203     69.17  |   Q     |         |         |       V |
24+ 0     215.3853     67.70  |   Q     |         |         |        V|
24+20     217.0246     59.51  |  Q      |         |         |        V|
24+40     217.9909     35.07  | Q       |         |         |        V|
25+ 0     218.5916     21.81  |Q        |         |         |        V|
25+20     219.0206     15.57  |Q        |         |         |        V|
25+40     219.3423     11.68  Q         |         |         |        V|
26+ 0     219.5879      8.91  Q         |         |         |        V|
26+20     219.7786      6.92  Q         |         |         |        V|
26+40     219.9258      5.35  Q         |         |         |        V|
27+ 0     220.0386      4.09  Q         |         |         |        V|
27+20     220.1231      3.07  Q         |         |         |        V|
27+40     220.1865      2.30  Q         |         |         |        V|
28+ 0     220.2270      1.47  Q         |         |         |        V|
28+20     220.2574      1.11  Q         |         |         |        V|
28+40     220.2791      0.79  Q         |         |         |        V|
29+ 0     220.2954      0.59  Q         |         |         |        V|
29+20     220.3084      0.47  Q         |         |         |        V|
29+40     220.3181      0.35  Q         |         |         |        V|
30+ 0     220.3247      0.24  Q         |         |         |         V
-----------------------------------------------------------------------
```

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

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-

Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

---------------------------------------------------------------------
---------------------------------------------------------------------

      Storm Event Year = 10

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
          49.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
          49.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
          49.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
          49.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0         49.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
    49.00   1.000         77.0         2.99     0.434

Area-averaged catchment yield fraction, Y =  0.434
Area-averaged low loss fraction, Yb =  0.566
User entry of time of concentration  =   0.220 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      49.00(Ac.)
Catchment Lag time =   0.176 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 189.3939
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.566 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.237(In)
Computed peak 30-minute rainfall =  0.532(In)
Specified peak 1-hour rainfall =  0.727(In)
Computed peak 3-hour rainfall =  1.285(In)
Specified peak 6-hour rainfall =  1.841(In)
Specified peak 24-hour rainfall =  3.779(In)


Rainfall depth area reduction factors:
Using a total area of      49.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.998     Adjusted rainfall =  0.237(In)
30-minute factor = 0.998    Adjusted rainfall =  0.531(In)
1-hour factor = 0.998       Adjusted rainfall =  0.725(In)
3-hour factor = 1.000       Adjusted rainfall =  1.284(In)
6-hour factor = 1.000       Adjusted rainfall =  1.841(In)
24-hour factor = 1.000      Adjusted rainfall =  3.779(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =       148.15 (CFS))

  1               81.743                 121.101
  2              162.707                 119.948
  3              182.464                  29.269
  4              191.939                  14.038
```

5	197.027	7.538
6	200.000	4.404

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	2.85	0.24	0.24	0.237
2	1.95	0.32	0.32	0.087
3	1.56	0.39	0.39	0.065
4	1.33	0.44	0.44	0.054
5	1.18	0.49	0.49	0.047
6	1.06	0.53	0.53	0.042
7	0.98	0.57	0.57	0.038
8	0.91	0.61	0.60	0.035
9	0.85	0.64	0.64	0.033
10	0.80	0.67	0.67	0.031
11	0.76	0.70	0.70	0.029
12	0.73	0.73	0.72	0.028
13	0.70	0.76	0.76	0.031
14	0.67	0.79	0.79	0.030
15	0.65	0.82	0.81	0.029
16	0.63	0.84	0.84	0.028
17	0.61	0.87	0.87	0.027
18	0.60	0.90	0.90	0.026
19	0.58	0.92	0.92	0.026
20	0.57	0.95	0.95	0.025
21	0.56	0.97	0.97	0.024
22	0.54	1.00	0.99	0.024
23	0.53	1.02	1.02	0.023
24	0.52	1.04	1.04	0.023
25	0.51	1.06	1.06	0.022
26	0.50	1.09	1.08	0.022
27	0.49	1.11	1.11	0.022
28	0.48	1.13	1.13	0.021
29	0.48	1.15	1.15	0.021
30	0.47	1.17	1.17	0.020
31	0.46	1.19	1.19	0.020
32	0.45	1.21	1.21	0.020
33	0.45	1.23	1.23	0.020
34	0.44	1.25	1.25	0.019
35	0.43	1.27	1.27	0.019
36	0.43	1.28	1.28	0.019
37	0.42	1.30	1.30	0.018
38	0.42	1.32	1.32	0.018
39	0.41	1.34	1.34	0.018
40	0.41	1.36	1.36	0.018
41	0.40	1.37	1.37	0.017
42	0.40	1.39	1.39	0.017
43	0.39	1.41	1.41	0.017
44	0.39	1.43	1.43	0.017
45	0.38	1.44	1.44	0.017
46	0.38	1.46	1.46	0.017
47	0.38	1.48	1.47	0.016
48	0.37	1.49	1.49	0.016
49	0.37	1.51	1.51	0.016
50	0.37	1.52	1.52	0.016
51	0.36	1.54	1.54	0.016

52	0.36	1.55	1.55	0.016
53	0.36	1.57	1.57	0.015
54	0.35	1.59	1.59	0.015
55	0.35	1.60	1.60	0.015
56	0.35	1.62	1.62	0.015
57	0.34	1.63	1.63	0.015
58	0.34	1.65	1.65	0.015
59	0.34	1.66	1.66	0.015
60	0.33	1.67	1.67	0.015
61	0.33	1.69	1.69	0.014
62	0.33	1.70	1.70	0.014
63	0.33	1.72	1.72	0.014
64	0.32	1.73	1.73	0.014
65	0.32	1.75	1.75	0.014
66	0.32	1.76	1.76	0.014
67	0.32	1.77	1.77	0.014
68	0.32	1.79	1.79	0.014
69	0.31	1.80	1.80	0.014
70	0.31	1.81	1.81	0.013
71	0.31	1.83	1.83	0.013
72	0.31	1.84	1.84	0.013
73	0.30	1.85	1.85	0.013
74	0.30	1.87	1.87	0.013
75	0.30	1.88	1.88	0.013
76	0.30	1.89	1.89	0.013
77	0.30	1.91	1.91	0.013
78	0.30	1.92	1.92	0.013
79	0.29	1.93	1.93	0.013
80	0.29	1.94	1.94	0.013
81	0.29	1.96	1.96	0.013
82	0.29	1.97	1.97	0.012
83	0.29	1.98	1.98	0.012
84	0.28	1.99	1.99	0.012
85	0.28	2.01	2.01	0.012
86	0.28	2.02	2.02	0.012
87	0.28	2.03	2.03	0.012
88	0.28	2.04	2.04	0.012
89	0.28	2.05	2.05	0.012
90	0.28	2.07	2.07	0.012
91	0.27	2.08	2.08	0.012
92	0.27	2.09	2.09	0.012
93	0.27	2.10	2.10	0.012
94	0.27	2.11	2.11	0.012
95	0.27	2.13	2.13	0.012
96	0.27	2.14	2.14	0.012
97	0.27	2.15	2.15	0.012
98	0.26	2.16	2.16	0.011
99	0.26	2.17	2.17	0.011
100	0.26	2.18	2.18	0.011
101	0.26	2.19	2.19	0.011
102	0.26	2.21	2.21	0.011
103	0.26	2.22	2.22	0.011
104	0.26	2.23	2.23	0.011
105	0.26	2.24	2.24	0.011
106	0.25	2.25	2.25	0.011
107	0.25	2.26	2.26	0.011
108	0.25	2.27	2.27	0.011

109	0.25	2.28	2.28	0.011
110	0.25	2.29	2.29	0.011
111	0.25	2.30	2.30	0.011
112	0.25	2.31	2.31	0.011
113	0.25	2.33	2.33	0.011
114	0.25	2.34	2.34	0.011
115	0.24	2.35	2.35	0.011
116	0.24	2.36	2.36	0.011
117	0.24	2.37	2.37	0.011
118	0.24	2.38	2.38	0.010
119	0.24	2.39	2.39	0.010
120	0.24	2.40	2.40	0.010
121	0.24	2.41	2.41	0.010
122	0.24	2.42	2.42	0.010
123	0.24	2.43	2.43	0.010
124	0.24	2.44	2.44	0.010
125	0.24	2.45	2.45	0.010
126	0.23	2.46	2.46	0.010
127	0.23	2.47	2.47	0.010
128	0.23	2.48	2.48	0.010
129	0.23	2.49	2.49	0.010
130	0.23	2.50	2.50	0.010
131	0.23	2.51	2.51	0.010
132	0.23	2.52	2.52	0.010
133	0.23	2.53	2.53	0.010
134	0.23	2.54	2.54	0.010
135	0.23	2.55	2.55	0.010
136	0.23	2.56	2.56	0.010
137	0.23	2.57	2.57	0.010
138	0.22	2.58	2.58	0.010
139	0.22	2.59	2.59	0.010
140	0.22	2.60	2.60	0.010
141	0.22	2.61	2.61	0.010
142	0.22	2.62	2.62	0.010
143	0.22	2.63	2.63	0.010
144	0.22	2.64	2.64	0.010
145	0.22	2.65	2.65	0.009
146	0.22	2.66	2.66	0.009
147	0.22	2.67	2.67	0.009
148	0.22	2.68	2.67	0.009
149	0.22	2.68	2.68	0.009
150	0.22	2.69	2.69	0.009
151	0.21	2.70	2.70	0.009
152	0.21	2.71	2.71	0.009
153	0.21	2.72	2.72	0.009
154	0.21	2.73	2.73	0.009
155	0.21	2.74	2.74	0.009
156	0.21	2.75	2.75	0.009
157	0.21	2.76	2.76	0.009
158	0.21	2.77	2.77	0.009
159	0.21	2.78	2.78	0.009
160	0.21	2.79	2.79	0.009
161	0.21	2.79	2.79	0.009
162	0.21	2.80	2.80	0.009
163	0.21	2.81	2.81	0.009
164	0.21	2.82	2.82	0.009
165	0.21	2.83	2.83	0.009

166	0.21	2.84	2.84	0.009
167	0.20	2.85	2.85	0.009
168	0.20	2.86	2.86	0.009
169	0.20	2.87	2.87	0.009
170	0.20	2.87	2.87	0.009
171	0.20	2.88	2.88	0.009
172	0.20	2.89	2.89	0.009
173	0.20	2.90	2.90	0.009
174	0.20	2.91	2.91	0.009
175	0.20	2.92	2.92	0.009
176	0.20	2.93	2.93	0.009
177	0.20	2.94	2.94	0.009
178	0.20	2.94	2.94	0.009
179	0.20	2.95	2.95	0.009
180	0.20	2.96	2.96	0.009
181	0.20	2.97	2.97	0.009
182	0.20	2.98	2.98	0.009
183	0.20	2.99	2.99	0.008
184	0.20	2.99	2.99	0.008
185	0.19	3.00	3.00	0.008
186	0.19	3.01	3.01	0.008
187	0.19	3.02	3.02	0.008
188	0.19	3.03	3.03	0.008
189	0.19	3.04	3.04	0.008
190	0.19	3.05	3.05	0.008
191	0.19	3.05	3.05	0.008
192	0.19	3.06	3.06	0.008
193	0.19	3.07	3.07	0.008
194	0.19	3.08	3.08	0.008
195	0.19	3.09	3.09	0.008
196	0.19	3.09	3.09	0.008
197	0.19	3.10	3.10	0.008
198	0.19	3.11	3.11	0.008
199	0.19	3.12	3.12	0.008
200	0.19	3.13	3.13	0.008
201	0.19	3.14	3.14	0.008
202	0.19	3.14	3.14	0.008
203	0.19	3.15	3.15	0.008
204	0.19	3.16	3.16	0.008
205	0.19	3.17	3.17	0.008
206	0.18	3.18	3.18	0.008
207	0.18	3.18	3.18	0.008
208	0.18	3.19	3.19	0.008
209	0.18	3.20	3.20	0.008
210	0.18	3.21	3.21	0.008
211	0.18	3.22	3.22	0.008
212	0.18	3.22	3.22	0.008
213	0.18	3.23	3.23	0.008
214	0.18	3.24	3.24	0.008
215	0.18	3.25	3.25	0.008
216	0.18	3.25	3.25	0.008
217	0.18	3.26	3.26	0.008
218	0.18	3.27	3.27	0.008
219	0.18	3.28	3.28	0.008
220	0.18	3.29	3.29	0.008
221	0.18	3.29	3.29	0.008
222	0.18	3.30	3.30	0.008

223	0.18	3.31	3.31	0.008
224	0.18	3.32	3.32	0.008
225	0.18	3.32	3.32	0.008
226	0.18	3.33	3.33	0.008
227	0.18	3.34	3.34	0.008
228	0.18	3.35	3.35	0.008
229	0.18	3.35	3.35	0.008
230	0.18	3.36	3.36	0.008
231	0.18	3.37	3.37	0.008
232	0.17	3.38	3.38	0.008
233	0.17	3.39	3.39	0.008
234	0.17	3.39	3.39	0.008
235	0.17	3.40	3.40	0.008
236	0.17	3.41	3.41	0.008
237	0.17	3.42	3.42	0.007
238	0.17	3.42	3.42	0.007
239	0.17	3.43	3.43	0.007
240	0.17	3.44	3.44	0.007
241	0.17	3.45	3.44	0.007
242	0.17	3.45	3.45	0.007
243	0.17	3.46	3.46	0.007
244	0.17	3.47	3.47	0.007
245	0.17	3.47	3.47	0.007
246	0.17	3.48	3.48	0.007
247	0.17	3.49	3.49	0.007
248	0.17	3.50	3.50	0.007
249	0.17	3.50	3.50	0.007
250	0.17	3.51	3.51	0.007
251	0.17	3.52	3.52	0.007
252	0.17	3.53	3.53	0.007
253	0.17	3.53	3.53	0.007
254	0.17	3.54	3.54	0.007
255	0.17	3.55	3.55	0.007
256	0.17	3.55	3.55	0.007
257	0.17	3.56	3.56	0.007
258	0.17	3.57	3.57	0.007
259	0.17	3.58	3.58	0.007
260	0.17	3.58	3.58	0.007
261	0.17	3.59	3.59	0.007
262	0.16	3.60	3.60	0.007
263	0.16	3.60	3.60	0.007
264	0.16	3.61	3.61	0.007
265	0.16	3.62	3.62	0.007
266	0.16	3.63	3.63	0.007
267	0.16	3.63	3.63	0.007
268	0.16	3.64	3.64	0.007
269	0.16	3.65	3.65	0.007
270	0.16	3.65	3.65	0.007
271	0.16	3.66	3.66	0.007
272	0.16	3.67	3.67	0.007
273	0.16	3.68	3.68	0.007
274	0.16	3.68	3.68	0.007
275	0.16	3.69	3.69	0.007
276	0.16	3.70	3.70	0.007
277	0.16	3.70	3.70	0.007
278	0.16	3.71	3.71	0.007
279	0.16	3.72	3.72	0.007

280	0.16	3.72	3.72	0.007
281	0.16	3.73	3.73	0.007
282	0.16	3.74	3.74	0.007
283	0.16	3.74	3.74	0.007
284	0.16	3.75	3.75	0.007
285	0.16	3.76	3.76	0.007
286	0.16	3.77	3.77	0.007
287	0.16	3.77	3.77	0.007
288	0.16	3.78	3.78	0.007

Time = 24.00 Hours Total unit rainfall = 3.78(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0273	0.0155	0.0119
2	0.0276	0.0156	0.0120
3	0.0279	0.0158	0.0121
4	0.0282	0.0160	0.0123
5	0.0285	0.0161	0.0124
6	0.0288	0.0163	0.0125
7	0.0292	0.0165	0.0127
8	0.0295	0.0167	0.0128
9	0.0299	0.0169	0.0130
10	0.0302	0.0171	0.0131
11	0.0306	0.0173	0.0133
12	0.0310	0.0176	0.0135
13	0.0315	0.0178	0.0137
14	0.0319	0.0180	0.0138
15	0.0323	0.0183	0.0140
16	0.0328	0.0186	0.0142
17	0.0333	0.0188	0.0145
18	0.0338	0.0191	0.0147
19	0.0344	0.0194	0.0149
20	0.0349	0.0198	0.0152
21	0.0356	0.0201	0.0154
22	0.0362	0.0205	0.0157
23	0.0369	0.0209	0.0160
24	0.0376	0.0213	0.0163
25	0.0383	0.0217	0.0166
26	0.0391	0.0221	0.0170
27	0.0400	0.0226	0.0174
28	0.0409	0.0232	0.0178
29	0.0419	0.0237	0.0182
30	0.0430	0.0243	0.0187
31	0.0442	0.0250	0.0192
32	0.0454	0.0257	0.0197
33	0.0468	0.0265	0.0203
34	0.0483	0.0273	0.0210
35	0.0500	0.0283	0.0217
36	0.0519	0.0293	0.0225
37	0.0540	0.0305	0.0234
38	0.0564	0.0319	0.0245
39	0.0592	0.0335	0.0257
40	0.0624	0.0353	0.0271
41	0.0662	0.0375	0.0288
42	0.0709	0.0401	0.0308

```
     43              0.0770           0.0435              0.0334
     44              0.0846           0.0479              0.0367
     45              0.0953           0.0539              0.0414
     46              0.1117           0.0632              0.0485
     47              0.1252           0.0708              0.0544
     48              0.2401           0.1358              0.1042
     49              0.3597           0.1447*             0.2150
     50              0.1080           0.0611              0.0469
     51              0.0828           0.0468              0.0360
     52              0.0698           0.0395              0.0303
     53              0.0616           0.0348              0.0267
     54              0.0558           0.0316              0.0242
     55              0.0514           0.0291              0.0223
     56              0.0479           0.0271              0.0208
     57              0.0451           0.0255              0.0196
     58              0.0427           0.0242              0.0186
     59              0.0407           0.0230              0.0177
     60              0.0389           0.0220              0.0169
     61              0.0374           0.0212              0.0162
     62              0.0360           0.0204              0.0156
     63              0.0348           0.0197              0.0151
     64              0.0337           0.0191              0.0146
     65              0.0327           0.0185              0.0142
     66              0.0318           0.0180              0.0138
     67              0.0309           0.0175              0.0134
     68              0.0302           0.0171              0.0131
     69              0.0294           0.0167              0.0128
     70              0.0288           0.0163              0.0125
     71              0.0281           0.0159              0.0122
     72              0.0276           0.0156              0.0120
    ---------------------------------------------------------------
                     3.7786           2.0790              1.6997
    ---------------------------------------------------------------
    ---------------------------------------------------------------
    Total soil rain loss =      2.08(In)
    Total effective rainfall =      1.70(In)
    Peak flow rate in flood hydrograph =     41.29(CFS)
    ---------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        24 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
                Hydrograph in  20   Minute intervals ((CFS))

    ---------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       12.5      25.0      37.5      50.0
-----------------------------------------------------------------------
  0+20       0.0396      1.44  VQ        |         |         |         |
  0+40       0.1189      2.88  V Q       |         |         |         |
  1+ 0       0.2085      3.25  V Q       |         |         |         |
  1+20       0.3037      3.46  V Q       |         |         |         |
  1+40       0.4024      3.58   VQ       |         |         |         |
  2+ 0       0.5036      3.67  |VQ       |         |         |         |
  2+20       0.6060      3.72  |VQ       |         |         |         |
  2+40       0.7095      3.76  | VQ      |         |         |         |
  3+ 0       0.8143      3.80  | VQ      |         |         |         |
  3+20       0.9203      3.85  | VQ      |         |         |         |
```

```
 3+40       1.0277      3.90  | VQ      |         |         |         |
 4+ 0       1.1364      3.95  |  Q      |         |         |         |
 4+20       1.2466      4.00  |  Q      |         |         |         |
 4+40       1.3582      4.05  |  Q      |         |         |         |
 5+ 0       1.4714      4.11  |  QV     |         |         |         |
 5+20       1.5862      4.17  |  QV     |         |         |         |
 5+40       1.7026      4.23  |  QV     |         |         |         |
 6+ 0       1.8209      4.29  |  Q V    |         |         |         |
 6+20       1.9410      4.36  |  Q V    |         |         |         |
 6+40       2.0630      4.43  |  Q V    |         |         |         |
 7+ 0       2.1871      4.50  |  Q  V   |         |         |         |
 7+20       2.3134      4.58  |  Q  V   |         |         |         |
 7+40       2.4419      4.67  |  Q   V  |         |         |         |
 8+ 0       2.5728      4.75  |  Q   V  |         |         |         |
 8+20       2.7063      4.85  |  Q   V  |         |         |         |
 8+40       2.8425      4.94  |  Q    V |         |         |         |
 9+ 0       2.9815      5.05  |   Q   V |         |         |         |
 9+20       3.1237      5.16  |   Q    V|         |         |         |
 9+40       3.2692      5.28  |   Q    V|         |         |         |
10+ 0       3.4182      5.41  |   Q    V|         |         |         |
10+20       3.5711      5.55  |   Q     V         |         |         |
10+40       3.7281      5.70  |   Q     V         |         |         |
11+ 0       3.8897      5.86  |   Q      V        |         |         |
11+20       4.0562      6.04  |   Q     |V        |         |         |
11+40       4.2282      6.24  |   Q     | V       |         |         |
12+ 0       4.4063      6.46  |    Q    | V       |         |         |
12+20       4.5911      6.71  |    Q    |  V      |         |         |
12+40       4.7837      6.99  |    Q    |  V      |         |         |
13+ 0       4.9849      7.31  |    Q    |   V     |         |         |
13+20       5.1963      7.67  |     Q   |   V     |         |         |
13+40       5.4195      8.10  |     Q   |    V    |         |         |
14+ 0       5.6569      8.62  |     Q   |     V   |         |         |
14+20       5.9121      9.26  |      Q  |      V  |         |         |
14+40       6.1898     10.08  |       Q |      V  |         |         |
15+ 0       6.4973     11.17  |       Q |       V |         |         |
15+20       6.8483     12.74  |         Q        V|         |         |
15+40       7.2482     14.52  |         |Q        V         |         |
16+ 0       7.8424     21.57  |         |      Q  | V       |         |
16+20       8.9800     41.29  |         |         |    V    |  Q      |
16+40       9.9672     35.84  |         |         |       Q |         |
17+ 0      10.4730     18.36  |         |   Q     |         V         |
17+20      10.8420     13.40  |         Q         |          V        |
17+40      11.1358     10.66  |       Q |         |         | V       |
18+ 0      11.3791      8.83  |      Q  |         |         | V       |
18+20      11.5801      7.30  |    Q    |         |         |  V      |
18+40      11.7638      6.67  |    Q    |         |         |  V      |
19+ 0      11.9346      6.20  |   Q     |         |         |   V     |
19+20      12.0949      5.82  |   Q     |         |         |   V     |
19+40      12.2465      5.51  |   Q     |         |         |    V    |
20+ 0      12.3909      5.24  |   Q     |         |         |    V    |
20+20      12.5290      5.01  |   Q     |         |         |     V   |
20+40      12.6615      4.81  |  Q      |         |         |     V   |
21+ 0      12.7892      4.63  |  Q      |         |         |     V   |
21+20      12.9125      4.48  |  Q      |         |         |      V  |
21+40      13.0319      4.33  |  Q      |         |         |      V  |
22+ 0      13.1477      4.20  |  Q      |         |         |      V  |
22+20      13.2602      4.09  |  Q      |         |         |       V |
```

```
   22+40      13.3698      3.98  |  Q      |         |         |       V |
   23+ 0      13.4766      3.88  |  Q      |         |         |       V |
   23+20      13.5809      3.78  |  Q      |         |         |        V|
   23+40      13.6827      3.70  | Q       |         |         |        V|
   24+ 0      13.7824      3.62  | Q       |         |         |        V|
   24+20      13.8409      2.12  |Q        |         |         |        V|
   24+40      13.8594      0.67  Q         |         |         |        V|
   25+ 0      13.8681      0.32  Q         |         |         |        V|
   25+20      13.8720      0.14  Q         |         |         |        V|
   25+40      13.8735      0.05  Q         |         |         |         V
-----------------------------------------------------------------------
```

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

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-

Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

---------------------------------------------------------------------
---------------------------------------------------------------------

      Storm Event Year = 100

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
          49.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
          49.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
          49.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
          49.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0         49.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
    49.00   1.000         77.0         2.99     0.588

Area-averaged catchment yield fraction, Y =  0.588
Area-averaged low loss fraction, Yb =  0.412
User entry of time of concentration  =   0.220 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      49.00(Ac.)
Catchment Lag time =   0.176 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 189.3939
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.412 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.378(In)
Computed peak 30-minute rainfall =  0.846(In)
Specified peak 1-hour rainfall =  1.155(In)
Computed peak 3-hour rainfall =  1.962(In)
Specified peak 6-hour rainfall =  2.740(In)
Specified peak 24-hour rainfall =  6.160(In)


Rainfall depth area reduction factors:
Using a total area of      49.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.998     Adjusted rainfall =  0.377(In)
30-minute factor = 0.998    Adjusted rainfall =  0.844(In)
1-hour factor = 0.998       Adjusted rainfall =  1.153(In)
3-hour factor = 1.000       Adjusted rainfall =  1.961(In)
6-hour factor = 1.000       Adjusted rainfall =  2.740(In)
24-hour factor = 1.000      Adjusted rainfall =  6.159(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =       148.15 (CFS))

  1               81.743                 121.101
  2              162.707                 119.948
  3              182.464                  29.269
  4              191.939                  14.038
```

5	197.027	7.538
6	200.000	4.404

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	4.53	0.38	0.38	0.377
2	3.10	0.52	0.51	0.138
3	2.48	0.62	0.62	0.103
4	2.11	0.70	0.70	0.085
5	1.87	0.78	0.78	0.074
6	1.69	0.85	0.84	0.066
7	1.55	0.91	0.90	0.061
8	1.44	0.96	0.96	0.056
9	1.35	1.02	1.01	0.052
10	1.28	1.06	1.06	0.049
11	1.21	1.11	1.11	0.047
12	1.16	1.16	1.15	0.044
13	1.11	1.20	1.20	0.046
14	1.07	1.24	1.24	0.044
15	1.03	1.29	1.28	0.042
16	1.00	1.33	1.33	0.041
17	0.96	1.37	1.36	0.039
18	0.94	1.40	1.40	0.038
19	0.91	1.44	1.44	0.037
20	0.89	1.48	1.48	0.036
21	0.86	1.51	1.51	0.035
22	0.84	1.55	1.55	0.034
23	0.82	1.58	1.58	0.034
24	0.81	1.61	1.61	0.033
25	0.79	1.65	1.64	0.032
26	0.77	1.68	1.68	0.031
27	0.76	1.71	1.71	0.031
28	0.74	1.74	1.74	0.030
29	0.73	1.77	1.77	0.030
30	0.72	1.80	1.80	0.029
31	0.71	1.83	1.82	0.029
32	0.70	1.85	1.85	0.028
33	0.68	1.88	1.88	0.028
34	0.67	1.91	1.91	0.027
35	0.66	1.94	1.93	0.027
36	0.65	1.96	1.96	0.027
37	0.64	1.99	1.99	0.026
38	0.64	2.01	2.01	0.026
39	0.63	2.04	2.04	0.025
40	0.62	2.06	2.06	0.025
41	0.61	2.09	2.09	0.025
42	0.60	2.11	2.11	0.024
43	0.60	2.14	2.14	0.024
44	0.59	2.16	2.16	0.024
45	0.58	2.18	2.18	0.024
46	0.58	2.21	2.21	0.023
47	0.57	2.23	2.23	0.023
48	0.56	2.25	2.25	0.023
49	0.56	2.28	2.28	0.023
50	0.55	2.30	2.30	0.022
51	0.55	2.32	2.32	0.022

52	0.54	2.34	2.34	0.022
53	0.54	2.36	2.36	0.022
54	0.53	2.39	2.38	0.021
55	0.53	2.41	2.41	0.021
56	0.52	2.43	2.43	0.021
57	0.52	2.45	2.45	0.021
58	0.51	2.47	2.47	0.021
59	0.51	2.49	2.49	0.020
60	0.50	2.51	2.51	0.020
61	0.50	2.53	2.53	0.020
62	0.49	2.55	2.55	0.020
63	0.49	2.57	2.57	0.020
64	0.49	2.59	2.59	0.020
65	0.48	2.61	2.61	0.019
66	0.48	2.63	2.63	0.019
67	0.47	2.65	2.65	0.019
68	0.47	2.67	2.67	0.019
69	0.47	2.68	2.68	0.019
70	0.46	2.70	2.70	0.019
71	0.46	2.72	2.72	0.019
72	0.46	2.74	2.74	0.018
73	0.45	2.76	2.76	0.022
74	0.45	2.78	2.78	0.022
75	0.45	2.81	2.81	0.022
76	0.45	2.83	2.83	0.022
77	0.44	2.85	2.85	0.022
78	0.44	2.87	2.87	0.022
79	0.44	2.89	2.89	0.021
80	0.44	2.91	2.91	0.021
81	0.43	2.93	2.93	0.021
82	0.43	2.96	2.96	0.021
83	0.43	2.98	2.98	0.021
84	0.43	3.00	3.00	0.021
85	0.43	3.02	3.02	0.021
86	0.42	3.04	3.04	0.021
87	0.42	3.06	3.06	0.021
88	0.42	3.08	3.08	0.021
89	0.42	3.10	3.10	0.020
90	0.42	3.12	3.12	0.020
91	0.41	3.14	3.14	0.020
92	0.41	3.16	3.16	0.020
93	0.41	3.18	3.18	0.020
94	0.41	3.20	3.20	0.020
95	0.41	3.22	3.22	0.020
96	0.41	3.24	3.24	0.020
97	0.40	3.26	3.26	0.020
98	0.40	3.28	3.28	0.020
99	0.40	3.30	3.30	0.020
100	0.40	3.32	3.32	0.019
101	0.40	3.34	3.34	0.019
102	0.40	3.36	3.36	0.019
103	0.39	3.38	3.38	0.019
104	0.39	3.40	3.40	0.019
105	0.39	3.42	3.42	0.019
106	0.39	3.43	3.43	0.019
107	0.39	3.45	3.45	0.019
108	0.39	3.47	3.47	0.019

109	0.38	3.49	3.49	0.019
110	0.38	3.51	3.51	0.019
111	0.38	3.53	3.53	0.019
112	0.38	3.55	3.55	0.019
113	0.38	3.57	3.57	0.018
114	0.38	3.58	3.58	0.018
115	0.38	3.60	3.60	0.018
116	0.37	3.62	3.62	0.018
117	0.37	3.64	3.64	0.018
118	0.37	3.66	3.66	0.018
119	0.37	3.67	3.67	0.018
120	0.37	3.69	3.69	0.018
121	0.37	3.71	3.71	0.018
122	0.37	3.73	3.73	0.018
123	0.37	3.75	3.75	0.018
124	0.36	3.76	3.76	0.018
125	0.36	3.78	3.78	0.018
126	0.36	3.80	3.80	0.018
127	0.36	3.82	3.82	0.018
128	0.36	3.83	3.83	0.018
129	0.36	3.85	3.85	0.017
130	0.36	3.87	3.87	0.017
131	0.36	3.89	3.89	0.017
132	0.35	3.90	3.90	0.017
133	0.35	3.92	3.92	0.017
134	0.35	3.94	3.94	0.017
135	0.35	3.96	3.96	0.017
136	0.35	3.97	3.97	0.017
137	0.35	3.99	3.99	0.017
138	0.35	4.01	4.01	0.017
139	0.35	4.02	4.02	0.017
140	0.35	4.04	4.04	0.017
141	0.35	4.06	4.06	0.017
142	0.34	4.07	4.07	0.017
143	0.34	4.09	4.09	0.017
144	0.34	4.11	4.11	0.017
145	0.34	4.12	4.12	0.017
146	0.34	4.14	4.14	0.017
147	0.34	4.16	4.16	0.017
148	0.34	4.17	4.17	0.017
149	0.34	4.19	4.19	0.016
150	0.34	4.21	4.21	0.016
151	0.34	4.22	4.22	0.016
152	0.33	4.24	4.24	0.016
153	0.33	4.26	4.26	0.016
154	0.33	4.27	4.27	0.016
155	0.33	4.29	4.29	0.016
156	0.33	4.30	4.30	0.016
157	0.33	4.32	4.32	0.016
158	0.33	4.34	4.34	0.016
159	0.33	4.35	4.35	0.016
160	0.33	4.37	4.37	0.016
161	0.33	4.38	4.38	0.016
162	0.33	4.40	4.40	0.016
163	0.33	4.42	4.42	0.016
164	0.32	4.43	4.43	0.016
165	0.32	4.45	4.45	0.016

166	0.32	4.46	4.46	0.016
167	0.32	4.48	4.48	0.016
168	0.32	4.50	4.50	0.016
169	0.32	4.51	4.51	0.016
170	0.32	4.53	4.53	0.016
171	0.32	4.54	4.54	0.016
172	0.32	4.56	4.56	0.016
173	0.32	4.57	4.57	0.015
174	0.32	4.59	4.59	0.015
175	0.32	4.60	4.60	0.015
176	0.31	4.62	4.62	0.015
177	0.31	4.63	4.63	0.015
178	0.31	4.65	4.65	0.015
179	0.31	4.66	4.66	0.015
180	0.31	4.68	4.68	0.015
181	0.31	4.70	4.70	0.015
182	0.31	4.71	4.71	0.015
183	0.31	4.73	4.73	0.015
184	0.31	4.74	4.74	0.015
185	0.31	4.76	4.76	0.015
186	0.31	4.77	4.77	0.015
187	0.31	4.79	4.79	0.015
188	0.31	4.80	4.80	0.015
189	0.31	4.82	4.82	0.015
190	0.31	4.83	4.83	0.015
191	0.30	4.85	4.85	0.015
192	0.30	4.86	4.86	0.015
193	0.30	4.87	4.87	0.015
194	0.30	4.89	4.89	0.015
195	0.30	4.90	4.90	0.015
196	0.30	4.92	4.92	0.015
197	0.30	4.93	4.93	0.015
198	0.30	4.95	4.95	0.015
199	0.30	4.96	4.96	0.015
200	0.30	4.98	4.98	0.015
201	0.30	4.99	4.99	0.015
202	0.30	5.01	5.01	0.014
203	0.30	5.02	5.02	0.014
204	0.30	5.04	5.04	0.014
205	0.30	5.05	5.05	0.014
206	0.29	5.06	5.06	0.014
207	0.29	5.08	5.08	0.014
208	0.29	5.09	5.09	0.014
209	0.29	5.11	5.11	0.014
210	0.29	5.12	5.12	0.014
211	0.29	5.14	5.14	0.014
212	0.29	5.15	5.15	0.014
213	0.29	5.16	5.16	0.014
214	0.29	5.18	5.18	0.014
215	0.29	5.19	5.19	0.014
216	0.29	5.21	5.21	0.014
217	0.29	5.22	5.22	0.014
218	0.29	5.23	5.23	0.014
219	0.29	5.25	5.25	0.014
220	0.29	5.26	5.26	0.014
221	0.29	5.28	5.28	0.014
222	0.29	5.29	5.29	0.014

223	0.29	5.30	5.30	0.014
224	0.28	5.32	5.32	0.014
225	0.28	5.33	5.33	0.014
226	0.28	5.35	5.35	0.014
227	0.28	5.36	5.36	0.014
228	0.28	5.37	5.37	0.014
229	0.28	5.39	5.39	0.014
230	0.28	5.40	5.40	0.014
231	0.28	5.41	5.41	0.014
232	0.28	5.43	5.43	0.014
233	0.28	5.44	5.44	0.014
234	0.28	5.46	5.46	0.014
235	0.28	5.47	5.47	0.014
236	0.28	5.48	5.48	0.014
237	0.28	5.50	5.50	0.014
238	0.28	5.51	5.51	0.014
239	0.28	5.52	5.52	0.014
240	0.28	5.54	5.54	0.013
241	0.28	5.55	5.55	0.013
242	0.28	5.56	5.56	0.013
243	0.28	5.58	5.58	0.013
244	0.27	5.59	5.59	0.013
245	0.27	5.60	5.60	0.013
246	0.27	5.62	5.62	0.013
247	0.27	5.63	5.63	0.013
248	0.27	5.64	5.64	0.013
249	0.27	5.66	5.66	0.013
250	0.27	5.67	5.67	0.013
251	0.27	5.68	5.68	0.013
252	0.27	5.70	5.70	0.013
253	0.27	5.71	5.71	0.013
254	0.27	5.72	5.72	0.013
255	0.27	5.74	5.74	0.013
256	0.27	5.75	5.75	0.013
257	0.27	5.76	5.76	0.013
258	0.27	5.78	5.78	0.013
259	0.27	5.79	5.79	0.013
260	0.27	5.80	5.80	0.013
261	0.27	5.82	5.82	0.013
262	0.27	5.83	5.83	0.013
263	0.27	5.84	5.84	0.013
264	0.27	5.85	5.85	0.013
265	0.27	5.87	5.87	0.013
266	0.27	5.88	5.88	0.013
267	0.26	5.89	5.89	0.013
268	0.26	5.91	5.91	0.013
269	0.26	5.92	5.92	0.013
270	0.26	5.93	5.93	0.013
271	0.26	5.94	5.94	0.013
272	0.26	5.96	5.96	0.013
273	0.26	5.97	5.97	0.013
274	0.26	5.98	5.98	0.013
275	0.26	6.00	6.00	0.013
276	0.26	6.01	6.01	0.013
277	0.26	6.02	6.02	0.013
278	0.26	6.03	6.03	0.013
279	0.26	6.05	6.05	0.013

280	0.26	6.06	6.06	0.013
281	0.26	6.07	6.07	0.013
282	0.26	6.08	6.08	0.013
283	0.26	6.10	6.10	0.013
284	0.26	6.11	6.11	0.013
285	0.26	6.12	6.12	0.013
286	0.26	6.13	6.13	0.013
287	0.26	6.15	6.15	0.013
288	0.26	6.16	6.16	0.013

Time = 24.00 Hours Total unit rainfall = 6.16(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0502	0.0207	0.0295
2	0.0506	0.0209	0.0297
3	0.0511	0.0211	0.0300
4	0.0516	0.0213	0.0303
5	0.0520	0.0215	0.0306
6	0.0525	0.0217	0.0309
7	0.0531	0.0219	0.0312
8	0.0536	0.0221	0.0315
9	0.0542	0.0223	0.0318
10	0.0547	0.0226	0.0322
11	0.0553	0.0228	0.0325
12	0.0560	0.0231	0.0329
13	0.0566	0.0234	0.0333
14	0.0573	0.0236	0.0337
15	0.0580	0.0239	0.0341
16	0.0587	0.0242	0.0345
17	0.0595	0.0245	0.0350
18	0.0603	0.0249	0.0354
19	0.0611	0.0252	0.0359
20	0.0620	0.0256	0.0364
21	0.0629	0.0260	0.0370
22	0.0639	0.0264	0.0376
23	0.0649	0.0268	0.0382
24	0.0660	0.0272	0.0388
25	0.0672	0.0277	0.0395
26	0.0684	0.0282	0.0402
27	0.0697	0.0287	0.0409
28	0.0711	0.0293	0.0418
29	0.0726	0.0299	0.0426
30	0.0742	0.0306	0.0436
31	0.0759	0.0313	0.0446
32	0.0778	0.0321	0.0457
33	0.0798	0.0329	0.0469
34	0.0820	0.0338	0.0482
35	0.0845	0.0349	0.0496
36	0.0872	0.0360	0.0512
37	0.0748	0.0308	0.0439
38	0.0783	0.0323	0.0460
39	0.0825	0.0340	0.0485
40	0.0873	0.0360	0.0513
41	0.0931	0.0384	0.0547
42	0.1002	0.0413	0.0589

```
     43              0.1095           0.0452              0.0643
     44              0.1213           0.0500              0.0713
     45              0.1378           0.0569              0.0810
     46              0.1635           0.0675              0.0961
     47              0.1991           0.0821              0.1170
     48              0.3817           0.1447*             0.2371
     49              0.5720           0.1447*             0.4274
     50              0.1578           0.0651              0.0927
     51              0.1185           0.0489              0.0696
     52              0.0985           0.0406              0.0579
     53              0.0861           0.0355              0.0506
     54              0.0775           0.0319              0.0455
     55              0.0865           0.0357              0.0508
     56              0.0815           0.0336              0.0479
     57              0.0773           0.0319              0.0454
     58              0.0738           0.0304              0.0433
     59              0.0707           0.0292              0.0416
     60              0.0681           0.0281              0.0400
     61              0.0658           0.0271              0.0386
     62              0.0637           0.0263              0.0374
     63              0.0618           0.0255              0.0363
     64              0.0601           0.0248              0.0353
     65              0.0585           0.0241              0.0344
     66              0.0571           0.0236              0.0336
     67              0.0558           0.0230              0.0328
     68              0.0546           0.0225              0.0321
     69              0.0535           0.0221              0.0314
     70              0.0524           0.0216              0.0308
     71              0.0514           0.0212              0.0302
     72              0.0505           0.0208              0.0297
    ---------------------------------------------------------------------
                     6.1594           2.4365              3.7229
    ---------------------------------------------------------------------
    ---------------------------------------------------------------------
    Total soil rain loss =      2.44(In)
    Total effective rainfall =      3.72(In)
    Peak flow rate in flood hydrograph =     85.89(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in  20   Minute intervals ((CFS))

    ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       22.5      45.0      67.5      90.0
-----------------------------------------------------------------------
  0+20       0.0984      3.57  VQ        |         |         |         |
  0+40       0.2950      7.14  V  Q      |         |         |         |
  1+ 0       0.5172      8.06  V  Q      |         |         |         |
  1+20       0.7528      8.55  V  Q      |         |         |         |
  1+40       0.9967      8.85  |V Q      |         |         |         |
  2+ 0       1.2465      9.07  |V  Q     |         |         |         |
  2+20       1.4987      9.16  |V  Q     |         |         |         |
  2+40       1.7535      9.25  | V Q     |         |         |         |
  3+ 0       2.0108      9.34  | V Q     |         |         |         |
  3+20       2.2709      9.44  | V Q     |         |         |         |
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 3+40       2.5337      9.54  |  VQ     |         |         |         |
 4+ 0       2.7994      9.65  |  VQ     |         |         |         |
 4+20       3.0681      9.75  |   Q     |         |         |         |
 4+40       3.3400      9.87  |   Q     |         |         |         |
 5+ 0       3.6151      9.99  |   Q     |         |         |         |
 5+20       3.8936     10.11  |   QV    |         |         |         |
 5+40       4.1756     10.24  |   QV    |         |         |         |
 6+ 0       4.4613     10.37  |   QV    |         |         |         |
 6+20       4.7509     10.51  |   Q V   |         |         |         |
 6+40       5.0445     10.66  |   Q V   |         |         |         |
 7+ 0       5.3424     10.81  |   Q  V  |         |         |         |
 7+20       5.6447     10.97  |   Q  V  |         |         |         |
 7+40       5.9518     11.15  |   Q  V  |         |         |         |
 8+ 0       6.2638     11.33  |    Q  V |         |         |         |
 8+20       6.5810     11.52  |    Q  V |         |         |         |
 8+40       6.9038     11.72  |    Q   V|         |         |         |
 9+ 0       7.2325     11.93  |    Q   V|         |         |         |
 9+20       7.5675     12.16  |    Q   V|         |         |         |
 9+40       7.9092     12.40  |    Q    V         |         |         |
10+ 0       8.2581     12.67  |    Q    V         |         |         |
10+20       8.6147     12.95  |    Q     V        |         |         |
10+40       8.9798     13.25  |    Q    |V        |         |         |
11+ 0       9.3539     13.58  |     Q   | V       |         |         |
11+20       9.7379     13.94  |     Q   | V       |         |         |
11+40      10.1328     14.33  |     Q   |  V      |         |         |
12+ 0      10.5397     14.77  |     Q   |  V      |         |         |
12+20      10.9295     14.15  |     Q   |   V     |         |         |
12+40      11.3043     13.61  |     Q   |   V     |         |         |
13+ 0      11.6895     13.98  |     Q   |    V    |         |         |
13+20      12.0915     14.59  |     Q   |    V    |         |         |
13+40      12.5157     15.40  |     Q   |     V   |         |         |
14+ 0      12.9679     16.41  |      Q  |      V  |         |         |
14+20      13.4566     17.74  |      Q  |      V  |         |         |
14+40      13.9920     19.44  |       Q |       V |         |         |
15+ 0      14.5898     21.70  |        Q|        V|         |         |
15+20      15.2791     25.02  |         |Q        V         |         |
15+40      16.1003     29.81  |         |  Q       V        |         |
16+ 0      17.4092     47.51  |         |         |QV       |         |
16+20      19.7753     85.89  |         |         |     V   |        Q |
16+40      21.7629     72.15  |         |         |       V | Q       |
17+ 0      22.7736     36.69  |         |     Q   |        V|         |
17+20      23.5001     26.37  |         |Q        |         V         |
17+40      24.0696     20.67  |        Q|         |         |V        |
18+ 0      24.5333     16.83  |      Q  |         |         | V       |
18+20      24.9422     14.84  |     Q   |         |         | V       |
18+40      25.3467     14.68  |     Q   |         |         |  V      |
19+ 0      25.7325     14.01  |     Q   |         |         |  V      |
19+20      26.1010     13.38  |    Q    |         |         |   V     |
19+40      26.4541     12.82  |    Q    |         |         |   V     |
20+ 0      26.7935     12.32  |    Q    |         |         |    V    |
20+20      27.1201     11.86  |    Q    |         |         |    V    |
20+40      27.4354     11.45  |    Q    |         |         |     V   |
21+ 0      27.7407     11.08  |   Q     |         |         |     V   |
21+20      28.0369     10.75  |   Q     |         |         |     V   |
21+40      28.3249     10.46  |   Q     |         |         |      V  |
22+ 0      28.6055     10.19  |   Q     |         |         |      V  |
22+20      28.8793      9.94  |   Q     |         |         |       V |
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   22+40      29.1468      9.71  |   Q     |         |         |       V |
   23+ 0      29.4085      9.50  |   Q     |         |         |       V |
   23+20      29.6647      9.30  |   Q     |         |         |        V|
   23+40      29.9159      9.12  |   Q     |         |         |        V|
   24+ 0      30.1624      8.95  |  Q      |         |         |        V|
   24+20      30.3072      5.25  | Q       |         |         |        V|
   24+40      30.3530      1.66  Q         |         |         |        V|
   25+ 0      30.3745      0.78  Q         |         |         |        V|
   25+20      30.3843      0.36  Q         |         |         |        V|
   25+40      30.3879      0.13  Q         |         |         |        V|
-----------------------------------------------------------------------
```

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

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Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

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      Storm Event Year = 10

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
        1339.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
        1339.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
        1339.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
        1339.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0       1339.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
  1339.00   1.000         77.0         2.99     0.434

Area-averaged catchment yield fraction, Y =  0.434
Area-averaged low loss fraction, Yb =  0.566
User entry of time of concentration  =   0.520 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =    1339.00(Ac.)
Catchment Lag time =   0.416 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 80.1282
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.566 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.237(In)
Computed peak 30-minute rainfall =  0.532(In)
Specified peak 1-hour rainfall =  0.727(In)
Computed peak 3-hour rainfall =  1.285(In)
Specified peak 6-hour rainfall =  1.841(In)
Specified peak 24-hour rainfall =  3.779(In)


Rainfall depth area reduction factors:
Using a total area of    1339.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.940     Adjusted rainfall =  0.223(In)
30-minute factor = 0.940    Adjusted rainfall =  0.500(In)
1-hour factor = 0.940       Adjusted rainfall =  0.683(In)
3-hour factor = 0.991       Adjusted rainfall =  1.273(In)
6-hour factor = 0.996       Adjusted rainfall =  1.833(In)
24-hour factor = 0.997      Adjusted rainfall =  3.769(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =      4048.38 (CFS))

  1               29.982                1213.806
  2              112.388                3336.095
  3              146.838                1394.644
  4              163.213                 662.962
```

5	173.484	415.796
6	180.421	280.820
7	185.654	211.865
8	189.701	163.817
9	192.679	120.589
10	195.631	119.503
11	196.897	51.251
12	197.942	42.292
13	198.438	20.079
14	198.857	16.984
15	199.277	16.984
16	200.000	29.280

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	2.85	0.24	0.22	0.223
2	1.95	0.32	0.31	0.082
3	1.56	0.39	0.37	0.061
4	1.33	0.44	0.42	0.051
5	1.18	0.49	0.46	0.044
6	1.06	0.53	0.50	0.039
7	0.98	0.57	0.54	0.036
8	0.91	0.61	0.57	0.033
9	0.85	0.64	0.60	0.031
10	0.80	0.67	0.63	0.029
11	0.76	0.70	0.66	0.028
12	0.73	0.73	0.68	0.026
13	0.70	0.76	0.71	0.032
14	0.67	0.79	0.75	0.031
15	0.65	0.82	0.78	0.030
16	0.63	0.84	0.80	0.029
17	0.61	0.87	0.83	0.028
18	0.60	0.90	0.86	0.027
19	0.58	0.92	0.89	0.027
20	0.57	0.95	0.91	0.026
21	0.56	0.97	0.94	0.026
22	0.54	1.00	0.96	0.025
23	0.53	1.02	0.99	0.025
24	0.52	1.04	1.01	0.024
25	0.51	1.06	1.04	0.024
26	0.50	1.09	1.06	0.023
27	0.49	1.11	1.08	0.023
28	0.48	1.13	1.10	0.023
29	0.48	1.15	1.13	0.022
30	0.47	1.17	1.15	0.022
31	0.46	1.19	1.17	0.022
32	0.45	1.21	1.19	0.021
33	0.45	1.23	1.21	0.021
34	0.44	1.25	1.23	0.021
35	0.43	1.27	1.25	0.020
36	0.43	1.28	1.27	0.020
37	0.42	1.30	1.29	0.018
38	0.42	1.32	1.31	0.018
39	0.41	1.34	1.33	0.018
40	0.41	1.36	1.35	0.018
41	0.40	1.37	1.36	0.018

42	0.40	1.39	1.38	0.017
43	0.39	1.41	1.40	0.017
44	0.39	1.43	1.41	0.017
45	0.38	1.44	1.43	0.017
46	0.38	1.46	1.45	0.017
47	0.38	1.48	1.46	0.016
48	0.37	1.49	1.48	0.016
49	0.37	1.51	1.50	0.016
50	0.37	1.52	1.51	0.016
51	0.36	1.54	1.53	0.016
52	0.36	1.55	1.54	0.016
53	0.36	1.57	1.56	0.016
54	0.35	1.59	1.58	0.015
55	0.35	1.60	1.59	0.015
56	0.35	1.62	1.61	0.015
57	0.34	1.63	1.62	0.015
58	0.34	1.65	1.64	0.015
59	0.34	1.66	1.65	0.015
60	0.33	1.67	1.67	0.015
61	0.33	1.69	1.68	0.015
62	0.33	1.70	1.69	0.014
63	0.33	1.72	1.71	0.014
64	0.32	1.73	1.72	0.014
65	0.32	1.75	1.74	0.014
66	0.32	1.76	1.75	0.014
67	0.32	1.77	1.76	0.014
68	0.32	1.79	1.78	0.014
69	0.31	1.80	1.79	0.014
70	0.31	1.81	1.81	0.014
71	0.31	1.83	1.82	0.014
72	0.31	1.84	1.83	0.013
73	0.30	1.85	1.85	0.013
74	0.30	1.86	1.86	0.013
75	0.30	1.88	1.87	0.013
76	0.30	1.89	1.88	0.013
77	0.30	1.90	1.90	0.013
78	0.29	1.91	1.91	0.013
79	0.29	1.93	1.92	0.013
80	0.29	1.94	1.94	0.013
81	0.29	1.95	1.95	0.013
82	0.29	1.96	1.96	0.012
83	0.29	1.98	1.97	0.012
84	0.28	1.99	1.99	0.012
85	0.28	2.00	2.00	0.012
86	0.28	2.01	2.01	0.012
87	0.28	2.03	2.02	0.012
88	0.28	2.04	2.03	0.012
89	0.28	2.05	2.05	0.012
90	0.27	2.06	2.06	0.012
91	0.27	2.07	2.07	0.012
92	0.27	2.09	2.08	0.012
93	0.27	2.10	2.09	0.012
94	0.27	2.11	2.11	0.012
95	0.27	2.12	2.12	0.012
96	0.27	2.13	2.13	0.012
97	0.27	2.14	2.14	0.012
98	0.26	2.16	2.15	0.011

99	0.26	2.17	2.16	0.011
100	0.26	2.18	2.17	0.011
101	0.26	2.19	2.19	0.011
102	0.26	2.20	2.20	0.011
103	0.26	2.21	2.21	0.011
104	0.26	2.22	2.22	0.011
105	0.26	2.23	2.23	0.011
106	0.25	2.24	2.24	0.011
107	0.25	2.26	2.25	0.011
108	0.25	2.27	2.26	0.011
109	0.25	2.28	2.27	0.011
110	0.25	2.29	2.28	0.011
111	0.25	2.30	2.30	0.011
112	0.25	2.31	2.31	0.011
113	0.25	2.32	2.32	0.011
114	0.25	2.33	2.33	0.011
115	0.24	2.34	2.34	0.011
116	0.24	2.35	2.35	0.011
117	0.24	2.36	2.36	0.011
118	0.24	2.37	2.37	0.010
119	0.24	2.38	2.38	0.010
120	0.24	2.39	2.39	0.010
121	0.24	2.40	2.40	0.010
122	0.24	2.41	2.41	0.010
123	0.24	2.42	2.42	0.010
124	0.24	2.43	2.43	0.010
125	0.23	2.45	2.44	0.010
126	0.23	2.46	2.45	0.010
127	0.23	2.47	2.46	0.010
128	0.23	2.48	2.47	0.010
129	0.23	2.49	2.48	0.010
130	0.23	2.50	2.49	0.010
131	0.23	2.51	2.50	0.010
132	0.23	2.52	2.51	0.010
133	0.23	2.53	2.52	0.010
134	0.23	2.53	2.53	0.010
135	0.23	2.54	2.54	0.010
136	0.23	2.55	2.55	0.010
137	0.22	2.56	2.56	0.010
138	0.22	2.57	2.57	0.010
139	0.22	2.58	2.58	0.010
140	0.22	2.59	2.59	0.010
141	0.22	2.60	2.60	0.010
142	0.22	2.61	2.61	0.010
143	0.22	2.62	2.62	0.010
144	0.22	2.63	2.63	0.010
145	0.22	2.64	2.64	0.009
146	0.22	2.65	2.65	0.009
147	0.22	2.66	2.66	0.009
148	0.22	2.67	2.67	0.009
149	0.22	2.68	2.68	0.009
150	0.22	2.69	2.68	0.009
151	0.21	2.70	2.69	0.009
152	0.21	2.71	2.70	0.009
153	0.21	2.72	2.71	0.009
154	0.21	2.72	2.72	0.009
155	0.21	2.73	2.73	0.009

156	0.21	2.74	2.74	0.009
157	0.21	2.75	2.75	0.009
158	0.21	2.76	2.76	0.009
159	0.21	2.77	2.77	0.009
160	0.21	2.78	2.78	0.009
161	0.21	2.79	2.79	0.009
162	0.21	2.80	2.79	0.009
163	0.21	2.81	2.80	0.009
164	0.21	2.82	2.81	0.009
165	0.21	2.82	2.82	0.009
166	0.20	2.83	2.83	0.009
167	0.20	2.84	2.84	0.009
168	0.20	2.85	2.85	0.009
169	0.20	2.86	2.86	0.009
170	0.20	2.87	2.87	0.009
171	0.20	2.88	2.87	0.009
172	0.20	2.89	2.88	0.009
173	0.20	2.89	2.89	0.009
174	0.20	2.90	2.90	0.009
175	0.20	2.91	2.91	0.009
176	0.20	2.92	2.92	0.009
177	0.20	2.93	2.93	0.009
178	0.20	2.94	2.93	0.009
179	0.20	2.95	2.94	0.009
180	0.20	2.95	2.95	0.009
181	0.20	2.96	2.96	0.009
182	0.20	2.97	2.97	0.008
183	0.20	2.98	2.98	0.008
184	0.19	2.99	2.99	0.008
185	0.19	3.00	2.99	0.008
186	0.19	3.01	3.00	0.008
187	0.19	3.01	3.01	0.008
188	0.19	3.02	3.02	0.008
189	0.19	3.03	3.03	0.008
190	0.19	3.04	3.04	0.008
191	0.19	3.05	3.04	0.008
192	0.19	3.05	3.05	0.008
193	0.19	3.06	3.06	0.008
194	0.19	3.07	3.07	0.008
195	0.19	3.08	3.08	0.008
196	0.19	3.09	3.09	0.008
197	0.19	3.10	3.09	0.008
198	0.19	3.10	3.10	0.008
199	0.19	3.11	3.11	0.008
200	0.19	3.12	3.12	0.008
201	0.19	3.13	3.13	0.008
202	0.19	3.14	3.13	0.008
203	0.19	3.14	3.14	0.008
204	0.19	3.15	3.15	0.008
205	0.19	3.16	3.16	0.008
206	0.18	3.17	3.17	0.008
207	0.18	3.18	3.17	0.008
208	0.18	3.18	3.18	0.008
209	0.18	3.19	3.19	0.008
210	0.18	3.20	3.20	0.008
211	0.18	3.21	3.21	0.008
212	0.18	3.22	3.21	0.008

213	0.18	3.22	3.22	0.008
214	0.18	3.23	3.23	0.008
215	0.18	3.24	3.24	0.008
216	0.18	3.25	3.25	0.008
217	0.18	3.26	3.25	0.008
218	0.18	3.26	3.26	0.008
219	0.18	3.27	3.27	0.008
220	0.18	3.28	3.28	0.008
221	0.18	3.29	3.28	0.008
222	0.18	3.29	3.29	0.008
223	0.18	3.30	3.30	0.008
224	0.18	3.31	3.31	0.008
225	0.18	3.32	3.31	0.008
226	0.18	3.32	3.32	0.008
227	0.18	3.33	3.33	0.008
228	0.18	3.34	3.34	0.008
229	0.18	3.35	3.35	0.008
230	0.18	3.36	3.35	0.008
231	0.17	3.36	3.36	0.008
232	0.17	3.37	3.37	0.008
233	0.17	3.38	3.38	0.008
234	0.17	3.39	3.38	0.008
235	0.17	3.39	3.39	0.008
236	0.17	3.40	3.40	0.007
237	0.17	3.41	3.41	0.007
238	0.17	3.42	3.41	0.007
239	0.17	3.42	3.42	0.007
240	0.17	3.43	3.43	0.007
241	0.17	3.44	3.44	0.007
242	0.17	3.44	3.44	0.007
243	0.17	3.45	3.45	0.007
244	0.17	3.46	3.46	0.007
245	0.17	3.47	3.46	0.007
246	0.17	3.47	3.47	0.007
247	0.17	3.48	3.48	0.007
248	0.17	3.49	3.49	0.007
249	0.17	3.50	3.49	0.007
250	0.17	3.50	3.50	0.007
251	0.17	3.51	3.51	0.007
252	0.17	3.52	3.52	0.007
253	0.17	3.53	3.52	0.007
254	0.17	3.53	3.53	0.007
255	0.17	3.54	3.54	0.007
256	0.17	3.55	3.54	0.007
257	0.17	3.55	3.55	0.007
258	0.17	3.56	3.56	0.007
259	0.17	3.57	3.57	0.007
260	0.17	3.58	3.57	0.007
261	0.16	3.58	3.58	0.007
262	0.16	3.59	3.59	0.007
263	0.16	3.60	3.59	0.007
264	0.16	3.60	3.60	0.007
265	0.16	3.61	3.61	0.007
266	0.16	3.62	3.62	0.007
267	0.16	3.63	3.62	0.007
268	0.16	3.63	3.63	0.007
269	0.16	3.64	3.64	0.007

270	0.16	3.65	3.64	0.007
271	0.16	3.65	3.65	0.007
272	0.16	3.66	3.66	0.007
273	0.16	3.67	3.67	0.007
274	0.16	3.67	3.67	0.007
275	0.16	3.68	3.68	0.007
276	0.16	3.69	3.69	0.007
277	0.16	3.69	3.69	0.007
278	0.16	3.70	3.70	0.007
279	0.16	3.71	3.71	0.007
280	0.16	3.72	3.71	0.007
281	0.16	3.72	3.72	0.007
282	0.16	3.73	3.73	0.007
283	0.16	3.74	3.73	0.007
284	0.16	3.74	3.74	0.007
285	0.16	3.75	3.75	0.007
286	0.16	3.76	3.76	0.007
287	0.16	3.76	3.76	0.007
288	0.16	3.77	3.77	0.007

Time = 24.00 Hours Total unit rainfall = 3.77(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0273	0.0155	0.0119
2	0.0276	0.0156	0.0120
3	0.0279	0.0158	0.0121
4	0.0282	0.0160	0.0122
5	0.0285	0.0161	0.0124
6	0.0288	0.0163	0.0125
7	0.0292	0.0165	0.0127
8	0.0295	0.0167	0.0128
9	0.0299	0.0169	0.0130
10	0.0302	0.0171	0.0131
11	0.0306	0.0173	0.0133
12	0.0310	0.0175	0.0135
13	0.0314	0.0178	0.0136
14	0.0319	0.0180	0.0138
15	0.0323	0.0183	0.0140
16	0.0328	0.0186	0.0142
17	0.0333	0.0188	0.0145
18	0.0338	0.0191	0.0147
19	0.0343	0.0194	0.0149
20	0.0349	0.0198	0.0152
21	0.0355	0.0201	0.0154
22	0.0362	0.0205	0.0157
23	0.0368	0.0208	0.0160
24	0.0375	0.0212	0.0163
25	0.0383	0.0217	0.0166
26	0.0391	0.0221	0.0170
27	0.0400	0.0226	0.0174
28	0.0409	0.0231	0.0178
29	0.0419	0.0237	0.0182
30	0.0429	0.0243	0.0186
31	0.0441	0.0249	0.0191
32	0.0453	0.0257	0.0197

```
 33              0.0467           0.0264              0.0203
 34              0.0482           0.0273              0.0209
 35              0.0499           0.0282              0.0217
 36              0.0518           0.0293              0.0225
 37              0.0544           0.0308              0.0236
 38              0.0568           0.0321              0.0247
 39              0.0595           0.0337              0.0258
 40              0.0627           0.0355              0.0272
 41              0.0665           0.0376              0.0289
 42              0.0712           0.0403              0.0309
 43              0.0828           0.0468              0.0359
 44              0.0902           0.0510              0.0392
 45              0.1004           0.0568              0.0436
 46              0.1159           0.0656              0.0503
 47              0.1180           0.0668              0.0512
 48              0.2262           0.1280              0.0982
 49              0.3390           0.1447*             0.1943
 50              0.1124           0.0636              0.0488
 51              0.0884           0.0500              0.0384
 52              0.0700           0.0396              0.0304
 53              0.0619           0.0350              0.0269
 54              0.0562           0.0318              0.0244
 55              0.0513           0.0290              0.0223
 56              0.0479           0.0271              0.0208
 57              0.0450           0.0255              0.0196
 58              0.0427           0.0241              0.0185
 59              0.0406           0.0230              0.0177
 60              0.0389           0.0220              0.0169
 61              0.0374           0.0211              0.0162
 62              0.0360           0.0204              0.0156
 63              0.0348           0.0197              0.0151
 64              0.0337           0.0191              0.0146
 65              0.0327           0.0185              0.0142
 66              0.0318           0.0180              0.0138
 67              0.0309           0.0175              0.0134
 68              0.0301           0.0171              0.0131
 69              0.0294           0.0166              0.0128
 70              0.0288           0.0163              0.0125
 71              0.0281           0.0159              0.0122
 72              0.0276           0.0156              0.0120
-------------------------------------------------------------------
                 3.7688           2.0852              1.6837
-------------------------------------------------------------------
-------------------------------------------------------------------
Total soil rain loss =      2.09(In)
Total effective rainfall =      1.68(In)
Peak flow rate in flood hydrograph =    937.29(CFS)
--------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
               R u n o f f      H y d r o g r a p h
-------------------------------------------------------------------
            Hydrograph in  20   Minute intervals ((CFS))

-------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      250.0     500.0     750.0    1000.0
-------------------------------------------------------------------
```

```
 0+20       0.3970     14.41  Q         |         |         |         |
 0+40       1.8892     54.17  V Q       |         |         |         |
 1+ 0       3.8529     71.28  V Q       |         |         |         |
 1+20       6.0539     79.90  V  Q      |         |         |         |
 1+40       8.4144     85.69  V  Q      |         |         |         |
 2+ 0      10.8924     89.95   V Q      |         |         |         |
 2+20      13.4671     93.46  |V Q      |         |         |         |
 2+40      16.1246     96.46  |V Q      |         |         |         |
 3+ 0      18.8521     99.01  | VQ      |         |         |         |
 3+20      21.6510    101.60  | V Q     |         |         |         |
 3+40      24.5005    103.44  | V Q     |         |         |         |
 4+ 0      27.3992    105.22  | V Q     |         |         |         |
 4+20      30.3413    106.80  |  VQ     |         |         |         |
 4+40      33.3273    108.39  |  VQ     |         |         |         |
 5+ 0      36.3589    110.05  |  VQ     |         |         |         |
 5+20      39.4419    111.91  |   Q     |         |         |         |
 5+40      42.5687    113.50  |   Q     |         |         |         |
 6+ 0      45.7412    115.16  |   Q     |         |         |         |
 6+20      48.9616    116.90  |   QV    |         |         |         |
 6+40      52.2322    118.72  |   QV    |         |         |         |
 7+ 0      55.5555    120.63  |   QV    |         |         |         |
 7+20      58.9341    122.65  |   Q V   |         |         |         |
 7+40      62.3712    124.76  |   Q V   |         |         |         |
 8+ 0      65.8698    127.00  |    Q V  |         |         |         |
 8+20      69.4337    129.37  |    Q V  |         |         |         |
 8+40      73.0667    131.88  |    Q V  |         |         |         |
 9+ 0      76.7731    134.54  |    Q  V |         |         |         |
 9+20      80.5577    137.38  |    Q  V |         |         |         |
 9+40      84.4261    140.42  |    Q  V |         |         |         |
10+ 0      88.3840    143.67  |    Q   V|         |         |         |
10+20      92.4384    147.18  |    Q   V|         |         |         |
10+40      96.5971    150.96  |     Q   V         |         |         |
11+ 0     100.8687    155.06  |     Q   V         |         |         |
11+20     105.2634    159.53  |     Q    V        |         |         |
11+40     109.7932    164.43  |     Q   |V        |         |         |
12+ 0     114.4718    169.83  |     Q   | V       |         |         |
12+20     119.3234    176.11  |      Q  | V       |         |         |
12+40     124.3812    183.60  |      Q  |  V      |         |         |
13+ 0     129.6571    191.51  |      Q  |  V      |         |         |
13+20     135.1764    200.35  |       Q |   V     |         |         |
13+40     140.9758    210.52  |       Q |    V    |         |         |
14+ 0     147.1045    222.47  |       Q |    V    |         |         |
14+20     153.7146    239.95  |        Q|     V   |         |         |
14+40     161.0475    266.18  |         Q      V  |         |         |
15+ 0     169.1062    292.53  |         |Q      V |         |         |
15+20     178.0732    325.50  |         |  Q    V |         |         |
15+40     188.0183    361.01  |         |   Q     V         |         |
16+ 0     200.0655    437.31  |         |      Q   V        |         |
16+20     219.9299    721.08  |         |          |  V    Q |         |
16+40     245.7506    937.29  |         |          |     V   |      Q  |
17+ 0     262.5345    609.25  |         |          |   Q  V  |         |
17+20     274.8992    448.84  |         |      Q  |        V|         |
17+40     284.8931    362.78  |         |   Q     |         V         |
18+ 0     293.3896    308.42  |         | Q       |          V        |
18+20     300.8738    271.68  |         Q         |         | V       |
18+40     307.5453    242.18  |        Q|         |         | V       |
19+ 0     313.5825    219.15  |       Q |         |         |  V      |
```

```
19+20     319.1387    201.69  |       Q |         |         |  V      |
19+40     324.0816    179.43  |      Q  |         |         |   V     |
20+ 0     328.6716    166.61  |     Q   |         |         |    V    |
20+20     332.9264    154.45  |     Q   |         |         |    V    |
20+40     336.9591    146.39  |    Q    |         |         |    V    |
21+ 0     340.8278    140.43  |    Q    |         |         |     V   |
21+20     344.5503    135.13  |    Q    |         |         |     V   |
21+40     348.0170    125.84  |    Q    |         |         |      V  |
22+ 0     351.3548    121.16  |   Q     |         |         |      V  |
22+20     354.5804    117.09  |   Q     |         |         |      V  |
22+40     357.7078    113.53  |   Q     |         |         |       V |
23+ 0     360.7467    110.31  |   Q     |         |         |       V |
23+20     363.7047    107.37  |   Q     |         |         |       V |
23+40     366.5886    104.69  |   Q     |         |         |        V|
24+ 0     369.4042    102.21  |   Q     |         |         |        V|
24+20     371.7642     85.67  |  Q      |         |         |        V|
24+40     372.9950     44.68  |Q        |         |         |        V|
25+ 0     373.7476     27.32  |Q        |         |         |        V|
25+20     374.2689     18.92  Q         |         |         |        V|
25+40     374.6441     13.62  Q         |         |         |        V|
26+ 0     374.9200     10.02  Q         |         |         |        V|
26+20     375.1213      7.31  Q         |         |         |        V|
26+40     375.2652      5.22  Q         |         |         |        V|
27+ 0     375.3669      3.69  Q         |         |         |        V|
27+20     375.4279      2.21  Q         |         |         |        V|
27+40     375.4710      1.56  Q         |         |         |        V|
28+ 0     375.4995      1.03  Q         |         |         |        V|
28+20     375.5209      0.78  Q         |         |         |        V|
28+40     375.5363      0.56  Q         |         |         |        V|
29+ 0     375.5460      0.35  Q         |         |         |         V
-----------------------------------------------------------------------
```

```
      U n i t   H y d r o g r a p h   A n a l y s i s

      Copyright (c) CIVILCADD/CIVILDESIGN, 2004, Version 7.0

            Study date  01/15/20

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+
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-

Kern County Synthetic Unit Hydrograph Hydrology Method
            Manual date - 1992


Program License Serial Number 6226

---------------------------------------------------------------------
---------------------------------------------------------------------

      Storm Event Year = 100

 English (in-lb) Input Units Used

 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



RAINFALL DATA INPUT:
Slope of Intensity-Duration Curve Slope = 0.550

Zone Designation: Coast Ranges      Latitude =  35.11

Area averaged rainfall intensity isohyetal data:
      Sub-Area        Duration        Isohyetal
      (Ac.)            (hours)         (In)
Rainfall data for year 2
        1339.00            6           1.11
---------------------------------------------------------------------
Rainfall data for year 2
        1339.00           24           2.12
---------------------------------------------------------------------
Rainfall data for year 100
        1339.00            6           2.74
---------------------------------------------------------------------
Rainfall data for year 100
        1339.00           24           6.16
---------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COAST RANGES area of study
Log-Log Rainfall Intensity Slope =  0.55
---------------------------------------------------------------------
```

```
******** Area-averaged max loss rate, Fm ********


SCS curve     Area       Area       Fp      Ap        Fm
Number         (Ac.)    Fraction   (In/Hr)  (dec.)   (In/Hr)
 77.0       1339.00      1.000     0.434    1.000    0.434

Area-averaged adjusted loss rate Fm (In/Hr) =  0.434

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN        S     Pervious
 (Ac.)      Fract         (AMC2)             Yield Fr
  1339.00   1.000         77.0         2.99     0.588

Area-averaged catchment yield fraction, Y =  0.588
Area-averaged low loss fraction, Yb =  0.412
User entry of time of concentration  =   0.520 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =    1339.00(Ac.)
Catchment Lag time =   0.416 hours
Unit interval =  20.000 minutes
Unit interval percentage of lag time = 80.1282
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.434(In/Hr)
Average low loss rate fraction (Yb) = 0.412 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall =  0.378(In)
Computed peak 30-minute rainfall =  0.846(In)
Specified peak 1-hour rainfall =  1.155(In)
Computed peak 3-hour rainfall =  1.962(In)
Specified peak 6-hour rainfall =  2.740(In)
Specified peak 24-hour rainfall =  6.160(In)


Rainfall depth area reduction factors:
Using a total area of    1339.00(Ac.) (Ref: fig. E-4)

5-minute factor = 0.940     Adjusted rainfall =  0.355(In)
30-minute factor = 0.940    Adjusted rainfall =  0.795(In)
1-hour factor = 0.940       Adjusted rainfall =  1.086(In)
3-hour factor = 0.991       Adjusted rainfall =  1.944(In)
6-hour factor = 0.996       Adjusted rainfall =  2.728(In)
24-hour factor = 0.997      Adjusted rainfall =  6.143(In)
----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
            (K =      4048.38 (CFS))

  1               29.982                1213.806
  2              112.388                3336.095
  3              146.838                1394.644
  4              163.213                 662.962
```

5	173.484	415.796
6	180.421	280.820
7	185.654	211.865
8	189.701	163.817
9	192.679	120.589
10	195.631	119.503
11	196.897	51.251
12	197.942	42.292
13	198.438	20.079
14	198.857	16.984
15	199.277	16.984
16	200.000	29.280

Rainfall values calculated at 5 minute intervals:

Peak Rainfall Unit Number	Intensity	Depth	Adjusted	Unit Rainfall (In)
1	4.53	0.38	0.36	0.355
2	3.10	0.52	0.49	0.130
3	2.48	0.62	0.58	0.097
4	2.11	0.70	0.66	0.080
5	1.87	0.78	0.73	0.070
6	1.69	0.85	0.80	0.063
7	1.55	0.91	0.85	0.057
8	1.44	0.96	0.91	0.053
9	1.35	1.02	0.95	0.049
10	1.28	1.06	1.00	0.046
11	1.21	1.11	1.04	0.044
12	1.16	1.16	1.09	0.042
13	1.11	1.20	1.13	0.047
14	1.07	1.24	1.18	0.045
15	1.03	1.29	1.22	0.044
16	1.00	1.33	1.27	0.043
17	0.96	1.37	1.31	0.041
18	0.94	1.40	1.35	0.040
19	0.91	1.44	1.39	0.039
20	0.89	1.48	1.42	0.038
21	0.86	1.51	1.46	0.037
22	0.84	1.55	1.50	0.036
23	0.82	1.58	1.53	0.036
24	0.81	1.61	1.57	0.035
25	0.79	1.65	1.60	0.034
26	0.77	1.68	1.64	0.034
27	0.76	1.71	1.67	0.033
28	0.74	1.74	1.70	0.032
29	0.73	1.77	1.73	0.032
30	0.72	1.80	1.77	0.031
31	0.71	1.83	1.80	0.031
32	0.70	1.85	1.83	0.030
33	0.68	1.88	1.86	0.030
34	0.67	1.91	1.89	0.030
35	0.66	1.94	1.92	0.029
36	0.65	1.96	1.94	0.029
37	0.64	1.99	1.97	0.026
38	0.64	2.01	2.00	0.026
39	0.63	2.04	2.02	0.025
40	0.62	2.06	2.05	0.025
41	0.61	2.09	2.07	0.025

42	0.60	2.11	2.10	0.025
43	0.60	2.14	2.12	0.024
44	0.59	2.16	2.14	0.024
45	0.58	2.18	2.17	0.024
46	0.58	2.21	2.19	0.023
47	0.57	2.23	2.21	0.023
48	0.56	2.25	2.24	0.023
49	0.56	2.28	2.26	0.023
50	0.55	2.30	2.28	0.022
51	0.55	2.32	2.30	0.022
52	0.54	2.34	2.33	0.022
53	0.54	2.36	2.35	0.022
54	0.53	2.39	2.37	0.022
55	0.53	2.41	2.39	0.021
56	0.52	2.43	2.41	0.021
57	0.52	2.45	2.43	0.021
58	0.51	2.47	2.45	0.021
59	0.51	2.49	2.47	0.021
60	0.50	2.51	2.50	0.020
61	0.50	2.53	2.52	0.020
62	0.49	2.55	2.54	0.020
63	0.49	2.57	2.56	0.020
64	0.49	2.59	2.58	0.020
65	0.48	2.61	2.59	0.020
66	0.48	2.63	2.61	0.019
67	0.47	2.65	2.63	0.019
68	0.47	2.67	2.65	0.019
69	0.47	2.68	2.67	0.019
70	0.46	2.70	2.69	0.019
71	0.46	2.72	2.71	0.019
72	0.46	2.74	2.73	0.019
73	0.45	2.76	2.75	0.022
74	0.45	2.78	2.77	0.022
75	0.45	2.80	2.79	0.022
76	0.45	2.82	2.82	0.022
77	0.44	2.84	2.84	0.022
78	0.44	2.86	2.86	0.022
79	0.44	2.89	2.88	0.021
80	0.44	2.91	2.90	0.021
81	0.43	2.93	2.92	0.021
82	0.43	2.95	2.94	0.021
83	0.43	2.97	2.96	0.021
84	0.43	2.99	2.99	0.021
85	0.43	3.01	3.01	0.021
86	0.42	3.03	3.03	0.021
87	0.42	3.05	3.05	0.021
88	0.42	3.07	3.07	0.020
89	0.42	3.09	3.09	0.020
90	0.42	3.11	3.11	0.020
91	0.41	3.13	3.13	0.020
92	0.41	3.15	3.15	0.020
93	0.41	3.17	3.17	0.020
94	0.41	3.19	3.19	0.020
95	0.41	3.21	3.21	0.020
96	0.40	3.23	3.23	0.020
97	0.40	3.25	3.25	0.020
98	0.40	3.27	3.27	0.020

99	0.40	3.29	3.29	0.019
100	0.40	3.31	3.31	0.019
101	0.40	3.33	3.33	0.019
102	0.39	3.35	3.34	0.019
103	0.39	3.37	3.36	0.019
104	0.39	3.39	3.38	0.019
105	0.39	3.41	3.40	0.019
106	0.39	3.43	3.42	0.019
107	0.39	3.45	3.44	0.019
108	0.38	3.46	3.46	0.019
109	0.38	3.48	3.48	0.019
110	0.38	3.50	3.50	0.019
111	0.38	3.52	3.51	0.019
112	0.38	3.54	3.53	0.019
113	0.38	3.56	3.55	0.018
114	0.38	3.58	3.57	0.018
115	0.38	3.59	3.59	0.018
116	0.37	3.61	3.61	0.018
117	0.37	3.63	3.62	0.018
118	0.37	3.65	3.64	0.018
119	0.37	3.67	3.66	0.018
120	0.37	3.68	3.68	0.018
121	0.37	3.70	3.70	0.018
122	0.37	3.72	3.71	0.018
123	0.36	3.74	3.73	0.018
124	0.36	3.76	3.75	0.018
125	0.36	3.77	3.77	0.018
126	0.36	3.79	3.79	0.018
127	0.36	3.81	3.80	0.018
128	0.36	3.83	3.82	0.018
129	0.36	3.84	3.84	0.017
130	0.36	3.86	3.86	0.017
131	0.36	3.88	3.87	0.017
132	0.35	3.90	3.89	0.017
133	0.35	3.91	3.91	0.017
134	0.35	3.93	3.92	0.017
135	0.35	3.95	3.94	0.017
136	0.35	3.96	3.96	0.017
137	0.35	3.98	3.98	0.017
138	0.35	4.00	3.99	0.017
139	0.35	4.02	4.01	0.017
140	0.35	4.03	4.03	0.017
141	0.34	4.05	4.04	0.017
142	0.34	4.07	4.06	0.017
143	0.34	4.08	4.08	0.017
144	0.34	4.10	4.09	0.017
145	0.34	4.12	4.11	0.017
146	0.34	4.13	4.13	0.017
147	0.34	4.15	4.14	0.017
148	0.34	4.16	4.16	0.016
149	0.34	4.18	4.18	0.016
150	0.34	4.20	4.19	0.016
151	0.33	4.21	4.21	0.016
152	0.33	4.23	4.23	0.016
153	0.33	4.25	4.24	0.016
154	0.33	4.26	4.26	0.016
155	0.33	4.28	4.27	0.016

156	0.33	4.30	4.29	0.016
157	0.33	4.31	4.31	0.016
158	0.33	4.33	4.32	0.016
159	0.33	4.34	4.34	0.016
160	0.33	4.36	4.35	0.016
161	0.33	4.37	4.37	0.016
162	0.33	4.39	4.39	0.016
163	0.32	4.41	4.40	0.016
164	0.32	4.42	4.42	0.016
165	0.32	4.44	4.43	0.016
166	0.32	4.45	4.45	0.016
167	0.32	4.47	4.46	0.016
168	0.32	4.49	4.48	0.016
169	0.32	4.50	4.50	0.016
170	0.32	4.52	4.51	0.016
171	0.32	4.53	4.53	0.016
172	0.32	4.55	4.54	0.015
173	0.32	4.56	4.56	0.015
174	0.32	4.58	4.57	0.015
175	0.31	4.59	4.59	0.015
176	0.31	4.61	4.60	0.015
177	0.31	4.62	4.62	0.015
178	0.31	4.64	4.63	0.015
179	0.31	4.65	4.65	0.015
180	0.31	4.67	4.67	0.015
181	0.31	4.68	4.68	0.015
182	0.31	4.70	4.70	0.015
183	0.31	4.72	4.71	0.015
184	0.31	4.73	4.73	0.015
185	0.31	4.75	4.74	0.015
186	0.31	4.76	4.76	0.015
187	0.31	4.77	4.77	0.015
188	0.31	4.79	4.79	0.015
189	0.31	4.80	4.80	0.015
190	0.30	4.82	4.82	0.015
191	0.30	4.83	4.83	0.015
192	0.30	4.85	4.84	0.015
193	0.30	4.86	4.86	0.015
194	0.30	4.88	4.87	0.015
195	0.30	4.89	4.89	0.015
196	0.30	4.91	4.90	0.015
197	0.30	4.92	4.92	0.015
198	0.30	4.94	4.93	0.015
199	0.30	4.95	4.95	0.015
200	0.30	4.97	4.96	0.015
201	0.30	4.98	4.98	0.015
202	0.30	5.00	4.99	0.014
203	0.30	5.01	5.01	0.014
204	0.30	5.02	5.02	0.014
205	0.29	5.04	5.03	0.014
206	0.29	5.05	5.05	0.014
207	0.29	5.07	5.06	0.014
208	0.29	5.08	5.08	0.014
209	0.29	5.10	5.09	0.014
210	0.29	5.11	5.11	0.014
211	0.29	5.12	5.12	0.014
212	0.29	5.14	5.13	0.014

213	0.29	5.15	5.15	0.014
214	0.29	5.17	5.16	0.014
215	0.29	5.18	5.18	0.014
216	0.29	5.19	5.19	0.014
217	0.29	5.21	5.20	0.014
218	0.29	5.22	5.22	0.014
219	0.29	5.24	5.23	0.014
220	0.29	5.25	5.25	0.014
221	0.29	5.26	5.26	0.014
222	0.29	5.28	5.27	0.014
223	0.28	5.29	5.29	0.014
224	0.28	5.31	5.30	0.014
225	0.28	5.32	5.32	0.014
226	0.28	5.33	5.33	0.014
227	0.28	5.35	5.34	0.014
228	0.28	5.36	5.36	0.014
229	0.28	5.38	5.37	0.014
230	0.28	5.39	5.39	0.014
231	0.28	5.40	5.40	0.014
232	0.28	5.42	5.41	0.014
233	0.28	5.43	5.43	0.014
234	0.28	5.44	5.44	0.014
235	0.28	5.46	5.45	0.014
236	0.28	5.47	5.47	0.014
237	0.28	5.48	5.48	0.014
238	0.28	5.50	5.49	0.014
239	0.28	5.51	5.51	0.014
240	0.28	5.52	5.52	0.013
241	0.28	5.54	5.53	0.013
242	0.28	5.55	5.55	0.013
243	0.27	5.56	5.56	0.013
244	0.27	5.58	5.57	0.013
245	0.27	5.59	5.59	0.013
246	0.27	5.60	5.60	0.013
247	0.27	5.62	5.61	0.013
248	0.27	5.63	5.63	0.013
249	0.27	5.64	5.64	0.013
250	0.27	5.66	5.65	0.013
251	0.27	5.67	5.67	0.013
252	0.27	5.68	5.68	0.013
253	0.27	5.70	5.69	0.013
254	0.27	5.71	5.71	0.013
255	0.27	5.72	5.72	0.013
256	0.27	5.74	5.73	0.013
257	0.27	5.75	5.75	0.013
258	0.27	5.76	5.76	0.013
259	0.27	5.78	5.77	0.013
260	0.27	5.79	5.79	0.013
261	0.27	5.80	5.80	0.013
262	0.27	5.82	5.81	0.013
263	0.27	5.83	5.83	0.013
264	0.27	5.84	5.84	0.013
265	0.27	5.85	5.85	0.013
266	0.26	5.87	5.86	0.013
267	0.26	5.88	5.88	0.013
268	0.26	5.89	5.89	0.013
269	0.26	5.91	5.90	0.013

270	0.26	5.92	5.92	0.013
271	0.26	5.93	5.93	0.013
272	0.26	5.94	5.94	0.013
273	0.26	5.96	5.95	0.013
274	0.26	5.97	5.97	0.013
275	0.26	5.98	5.98	0.013
276	0.26	5.99	5.99	0.013
277	0.26	6.01	6.00	0.013
278	0.26	6.02	6.02	0.013
279	0.26	6.03	6.03	0.013
280	0.26	6.05	6.04	0.013
281	0.26	6.06	6.06	0.013
282	0.26	6.07	6.07	0.013
283	0.26	6.08	6.08	0.013
284	0.26	6.10	6.09	0.013
285	0.26	6.11	6.11	0.013
286	0.26	6.12	6.12	0.013
287	0.26	6.13	6.13	0.013
288	0.26	6.15	6.14	0.013

Time = 24.00 Hours Total unit rainfall = 6.14(In)

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0502	0.0207	0.0295
2	0.0506	0.0209	0.0297
3	0.0511	0.0211	0.0300
4	0.0515	0.0213	0.0303
5	0.0520	0.0215	0.0306
6	0.0525	0.0217	0.0309
7	0.0530	0.0219	0.0312
8	0.0536	0.0221	0.0315
9	0.0541	0.0223	0.0318
10	0.0547	0.0226	0.0321
11	0.0553	0.0228	0.0325
12	0.0559	0.0231	0.0329
13	0.0566	0.0233	0.0332
14	0.0572	0.0236	0.0336
15	0.0579	0.0239	0.0340
16	0.0587	0.0242	0.0345
17	0.0594	0.0245	0.0349
18	0.0602	0.0248	0.0354
19	0.0611	0.0252	0.0359
20	0.0619	0.0256	0.0364
21	0.0629	0.0259	0.0369
22	0.0638	0.0263	0.0375
23	0.0649	0.0268	0.0381
24	0.0659	0.0272	0.0387
25	0.0671	0.0277	0.0394
26	0.0683	0.0282	0.0401
27	0.0696	0.0287	0.0409
28	0.0710	0.0293	0.0417
29	0.0725	0.0299	0.0426
30	0.0740	0.0305	0.0435
31	0.0758	0.0313	0.0445
32	0.0776	0.0320	0.0456

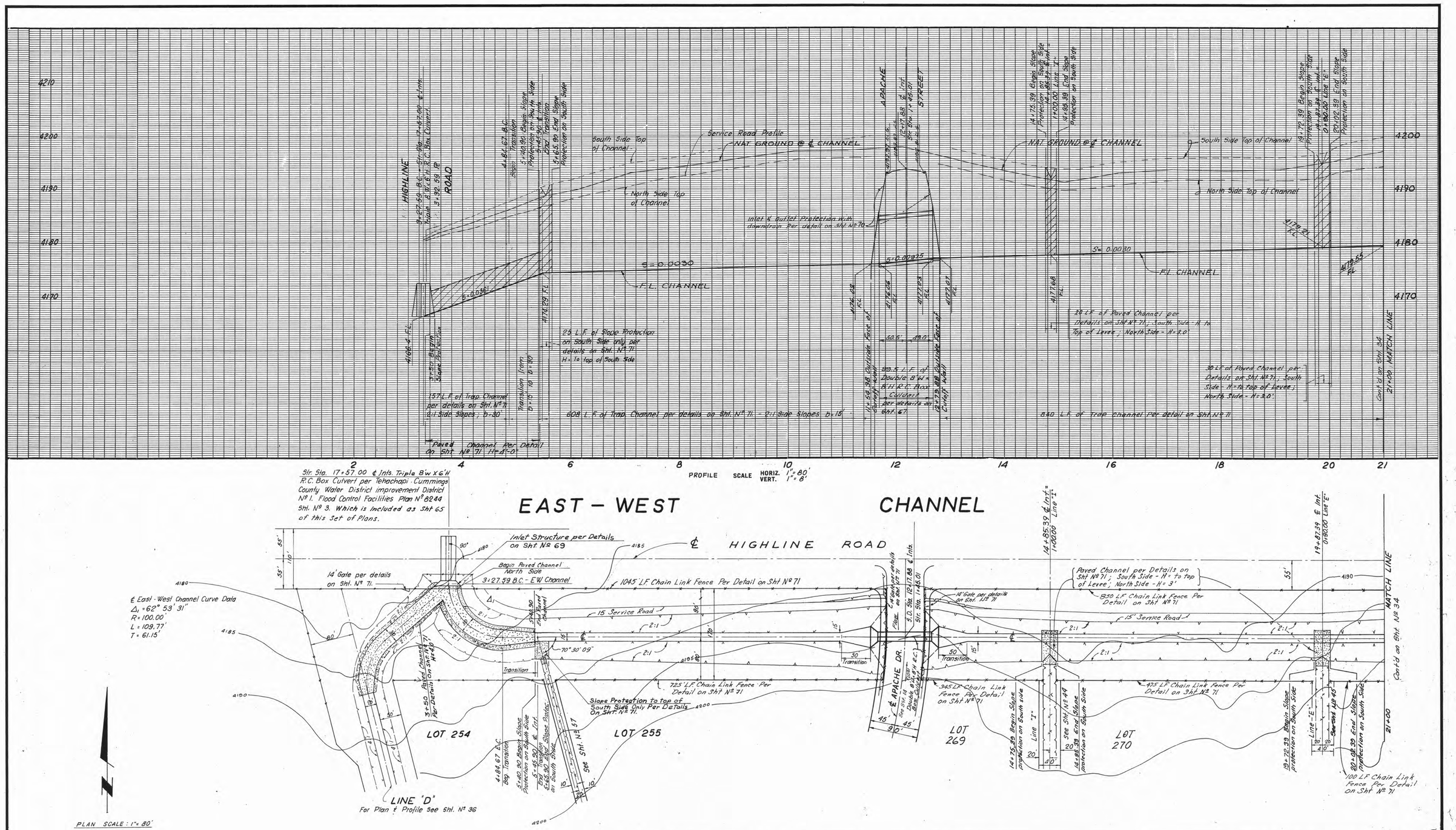
```
 33              0.0797           0.0329              0.0468
 34              0.0819           0.0338              0.0481
 35              0.0843           0.0348              0.0495
 36              0.0870           0.0359              0.0511
 37              0.0754           0.0311              0.0443
 38              0.0789           0.0326              0.0464
 39              0.0831           0.0343              0.0488
 40              0.0879           0.0363              0.0516
 41              0.0936           0.0386              0.0550
 42              0.1007           0.0415              0.0592
 43              0.1185           0.0489              0.0696
 44              0.1301           0.0536              0.0764
 45              0.1461           0.0603              0.0859
 46              0.1707           0.0704              0.1003
 47              0.1876           0.0774              0.1102
 48              0.3597           0.1447*             0.2150
 49              0.5390           0.1447*             0.3944
 50              0.1652           0.0681              0.0971
 51              0.1273           0.0525              0.0748
 52              0.0990           0.0408              0.0582
 53              0.0867           0.0358              0.0509
 54              0.0781           0.0322              0.0459
 55              0.0864           0.0356              0.0507
 56              0.0813           0.0335              0.0478
 57              0.0772           0.0318              0.0453
 58              0.0737           0.0304              0.0433
 59              0.0706           0.0291              0.0415
 60              0.0680           0.0280              0.0400
 61              0.0657           0.0271              0.0386
 62              0.0636           0.0262              0.0374
 63              0.0617           0.0255              0.0363
 64              0.0600           0.0248              0.0353
 65              0.0585           0.0241              0.0344
 66              0.0571           0.0235              0.0335
 67              0.0558           0.0230              0.0328
 68              0.0546           0.0225              0.0321
 69              0.0534           0.0220              0.0314
 70              0.0524           0.0216              0.0308
 71              0.0514           0.0212              0.0302
 72              0.0505           0.0208              0.0297
-------------------------------------------------------------------
                 6.1434           2.4526              3.6908
-------------------------------------------------------------------
-------------------------------------------------------------------
Total soil rain loss =      2.45(In)
Total effective rainfall =      3.69(In)
Peak flow rate in flood hydrograph =   1922.27(CFS)
-----------------------------------------------------------------------
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
               R u n o f f      H y d r o g r a p h
-------------------------------------------------------------------
            Hydrograph in  20   Minute intervals ((CFS))

-------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      500.0    1000.0    1500.0    2000.0
-------------------------------------------------------------------
```

```
 0+20       0.9853     35.77  Q         |         |         |         |
 0+40       4.6875    134.39  V Q       |         |         |         |
 1+ 0       9.5547    176.68  V  Q      |         |         |         |
 1+20      15.0040    197.81  V  Q      |         |         |         |
 1+40      20.8409    211.88   V  Q     |         |         |         |
 2+ 0      26.9605    222.14  |V  Q     |         |         |         |
 2+20      33.3105    230.51  |V  Q     |         |         |         |
 2+40      39.8555    237.58  |V  Q     |         |         |         |
 3+ 0      46.5636    243.50  | V Q     |         |         |         |
 3+20      53.4371    249.51  | V Q     |         |         |         |
 3+40      60.4239    253.62  | V  Q    |         |         |         |
 4+ 0      67.5197    257.58  |  V Q    |         |         |         |
 4+20      74.7096    260.99  |  V Q    |         |         |         |
 4+40      81.9943    264.43  |  V Q    |         |         |         |
 5+ 0      89.3770    267.99  |   VQ    |         |         |         |
 5+20      96.8713    272.04  |   VQ    |         |         |         |
 5+40     104.4573    275.37  |    Q    |         |         |         |
 6+ 0     112.1390    278.85  |    Q    |         |         |         |
 6+20     119.9206    282.47  |    Q    |         |         |         |
 6+40     127.8068    286.27  |    QV   |         |         |         |
 7+ 0     135.8026    290.25  |    QV   |         |         |         |
 7+20     143.9133    294.42  |    QV   |         |         |         |
 7+40     152.1448    298.80  |    Q V  |         |         |         |
 8+ 0     160.5035    303.42  |     QV  |         |         |         |
 8+20     168.9964    308.29  |     Q V |         |         |         |
 8+40     177.6313    313.45  |     Q V |         |         |         |
 9+ 0     186.4166    318.91  |     Q  V|         |         |         |
 9+20     195.3618    324.71  |     Q  V|         |         |         |
 9+40     204.4773    330.89  |     Q  V|         |         |         |
10+ 0     213.7749    337.50  |     Q   V         |         |         |
10+20     223.2676    344.59  |     Q   V         |         |         |
10+40     232.9704    352.21  |      Q   V        |         |         |
11+ 0     242.9003    360.45  |      Q  |V        |         |         |
11+20     253.0766    369.40  |      Q  | V       |         |         |
11+40     263.5220    379.17  |      Q  | V       |         |         |
12+ 0     274.2628    389.89  |      Q  |  V      |         |         |
12+20     285.0414    391.26  |      Q  |  V      |         |         |
12+40     295.3929    375.76  |      Q  |   V     |         |         |
13+ 0     305.8326    378.96  |      Q  |   V     |         |         |
13+20     316.5982    390.79  |      Q  |    V    |         |         |
13+40     327.8286    407.66  |       Q |    V    |         |         |
14+ 0     339.6611    429.52  |       Q |     V   |         |         |
14+20     352.4307    463.53  |        Q|      V  |         |         |
14+40     366.6577    516.44  |         Q      V  |         |         |
15+ 0     382.3753    570.55  |         |Q      V |         |         |
15+20     399.9884    639.35  |         | Q      V|         |         |
15+40     419.9434    724.37  |         |   Q     V         |         |
16+ 0     445.2564    918.86  |         |       Q  V        |         |
16+20     487.1083   1519.22  |         |          |  V      Q         |
16+40     540.0635   1922.27  |         |          |     V   |       Q |
17+ 0     574.1226   1236.35  |         |          |   Q  V  |         |
17+20     598.9013    899.46  |         |      Q   |        V|         |
17+40     618.6917    718.39  |         |   Q      |         V         |
18+ 0     635.3500    604.70  |         | Q        |         V         |
18+20     650.2018    539.12  |         Q          |         |V        |
18+40     664.2126    508.59  |         Q          |         | V       |
19+ 0     677.2691    473.95  |        Q|          |         | V       |
```

```
  19+20     689.4820    443.33  |       Q |         |         |  V      |
  19+40     700.5421    401.48  |       Q |         |         |   V     |
  20+ 0     710.9426    377.54  |      Q  |         |         |   V     |
  20+20     720.7120    354.63  |      Q  |         |         |    V    |
  20+40     730.0716    339.76  |     Q   |         |         |    V    |
  21+ 0     739.1247    328.63  |     Q   |         |         |    V    |
  21+20     747.8940    318.32  |     Q   |         |         |     V   |
  21+40     756.1509    299.73  |    Q    |         |         |     V   |
  22+ 0     764.1515    290.42  |    Q    |         |         |      V  |
  22+20     771.9239    282.14  |    Q    |         |         |      V  |
  22+40     779.4961    274.87  |    Q    |         |         |      V  |
  23+ 0     786.8871    268.30  |    Q    |         |         |       V |
  23+20     794.1158    262.40  |    Q    |         |         |       V |
  23+40     801.1883    256.73  |    Q    |         |         |       V |
  24+ 0     808.1161    251.48  |    Q    |         |         |        V|
  24+20     813.9344    211.20  |   Q     |         |         |        V|
  24+40     816.9636    109.96  | Q       |         |         |        V|
  25+ 0     818.8140     67.17  |Q        |         |         |        V|
  25+20     820.0957     46.52  Q         |         |         |        V|
  25+40     821.0181     33.49  Q         |         |         |        V|
  26+ 0     821.6970     24.64  Q         |         |         |        V|
  26+20     822.1925     17.99  Q         |         |         |        V|
  26+40     822.5470     12.87  Q         |         |         |        V|
  27+ 0     822.7979      9.11  Q         |         |         |        V|
  27+20     822.9481      5.45  Q         |         |         |        V|
  27+40     823.0544      3.86  Q         |         |         |        V|
  28+ 0     823.1246      2.55  Q         |         |         |        V|
  28+20     823.1775      1.92  Q         |         |         |        V|
  28+40     823.2157      1.39  Q         |         |         |        V|
  29+ 0     823.2396      0.87  Q         |         |         |         V
-----------------------------------------------------------------------
```

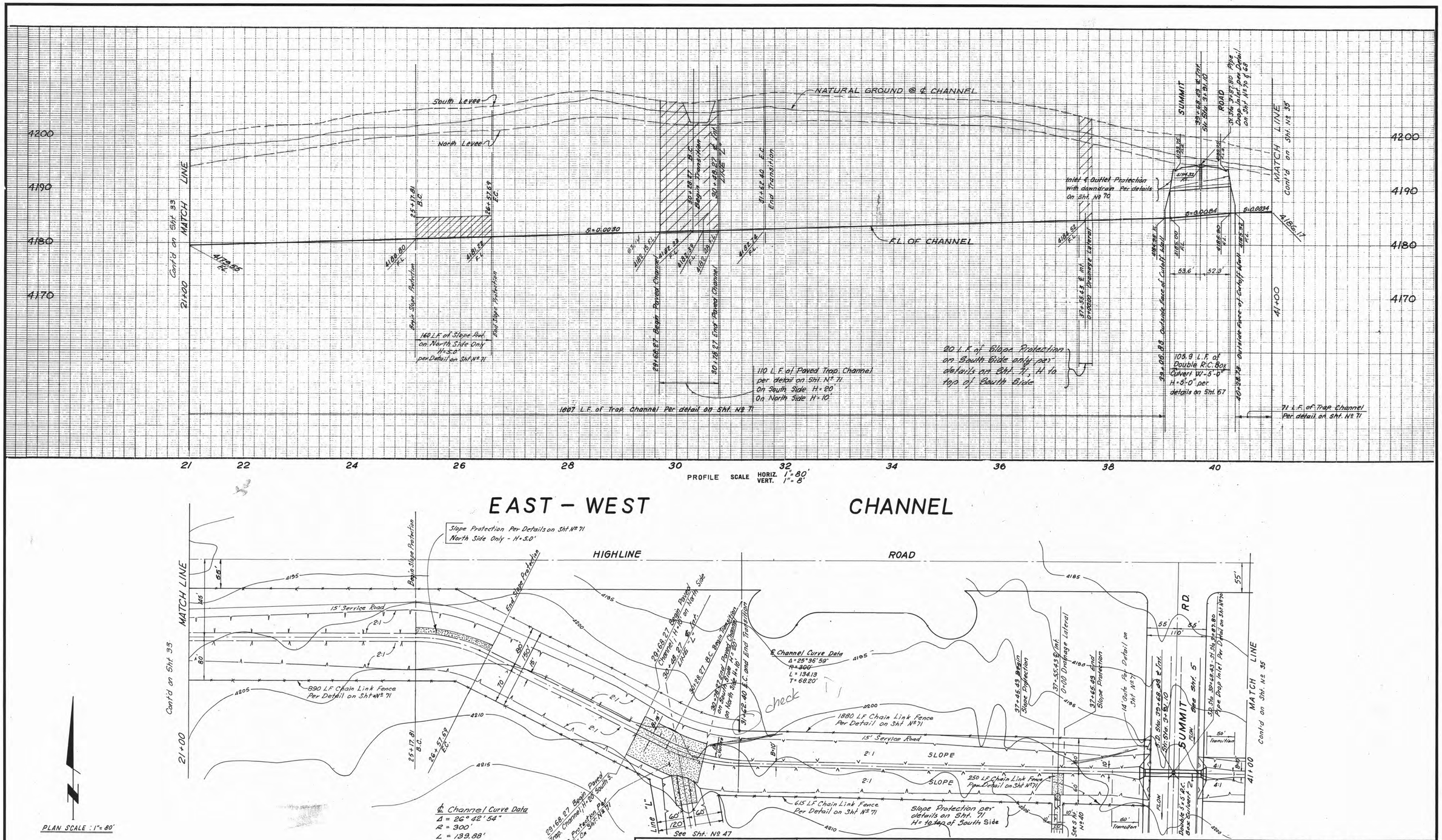
APPENDIX “D”



Approved By Dept. of Highways & Bridges

APPROVED _____ R.C.E. Date

McINTIRE & QUIROS INC. 670 MONTEREY PASS RD. MONTEREY PARK, CALIF. 283-7611	REVISIONS	KERN COUNTY CALIFORNIA
BY: Jack Nelson APPROVED BY R.E. 16583 10-2-67	Alignment @ Highline Road Triple 8W x 6H Box Culvert @ 17+57.00 Highline Road; Dbl 8W x 8W Box Culvert @ 1+45.08 Apache Drive 8-28-68	PLAN AND PROFILE
COUNTY SURVEYOR Paul D. Fuller County Surveyor	REVISED BY ____ RE. NO. ____ APPROVED ____ DATE ____ REVISED BY ____ RE. NO. ____ APPROVED ____ DATE ____	EXHIBIT "A"-2
		TR. 3116 STORM DRAIN SHT 33 of 71 SHTS



EAST – WEST CHANNEL

McINTIRE & QUIROS INC.
670 MONTEREY PASS RD. , MONTEREY PARK, CALIF.
283-7611

BY: Jack Quiros
APPROVED BY R.E. 16583
10-2-67
COUNTY SURVEYOR Paul D. Foulkes Deputy 7-1-69

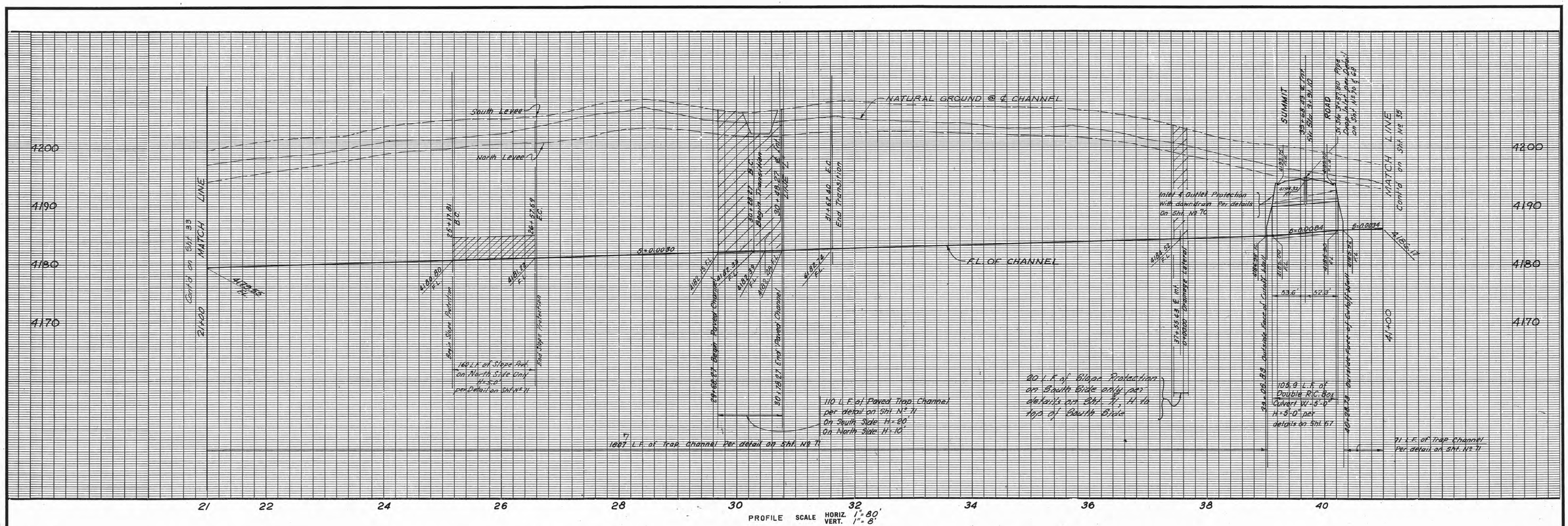
REVISIONS

Dbl 5'W x 5'H Box Culvert @ 3+91.10 Summit Drive
8-28-68

REVISED BY ____ RE. NO. ____
APPROVED ____ DATE ____
REVISED BY ____ RE. NO. ____
APPROVED ____ DATE ____

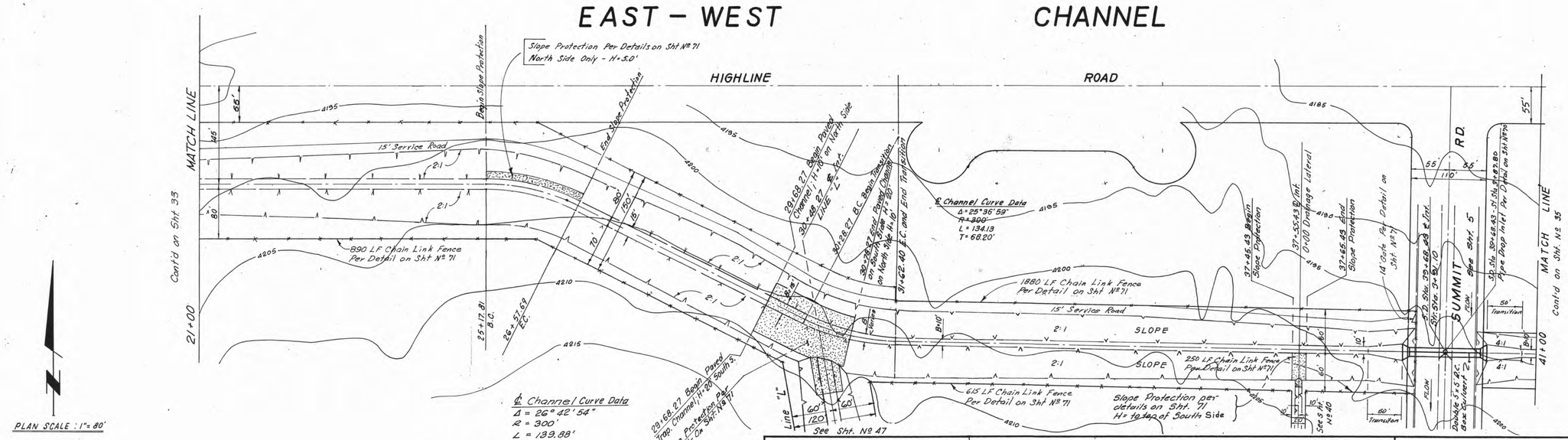
KERN COUNTY CALIFORNIA
PLAN AND PROFILE
EXHIBIT "A"-2

TR. 3116 | STORM DRAIN | SHT 34 of 71 SHTS



PROFILE SCALE HORIZ. 1"=80' VERT. 1"=8'

EAST – WEST CHANNEL



PLAN SCALE : 1"= 80'

Approved By Dept of Highways & Bridges

APPROVED _____ R.C.E. Date

McINTIRE & QUIROS INC.
670 MONTEREY PASS RD. MONTEREY PARK, CALIF.
283-7611

BY: Jack Nelson
APPROVED BY R.E. 16583
10-2-67
COUNTY SURVEYOR Paul D. Sullen Deputy 7-1-69

REVISIONS

Dbl SWxSH Box Culvert @ 3+91.10 Summit Drive 8-28-68

REVISED BY _____ RE. NO. _____
APPROVED _____ DATE _____

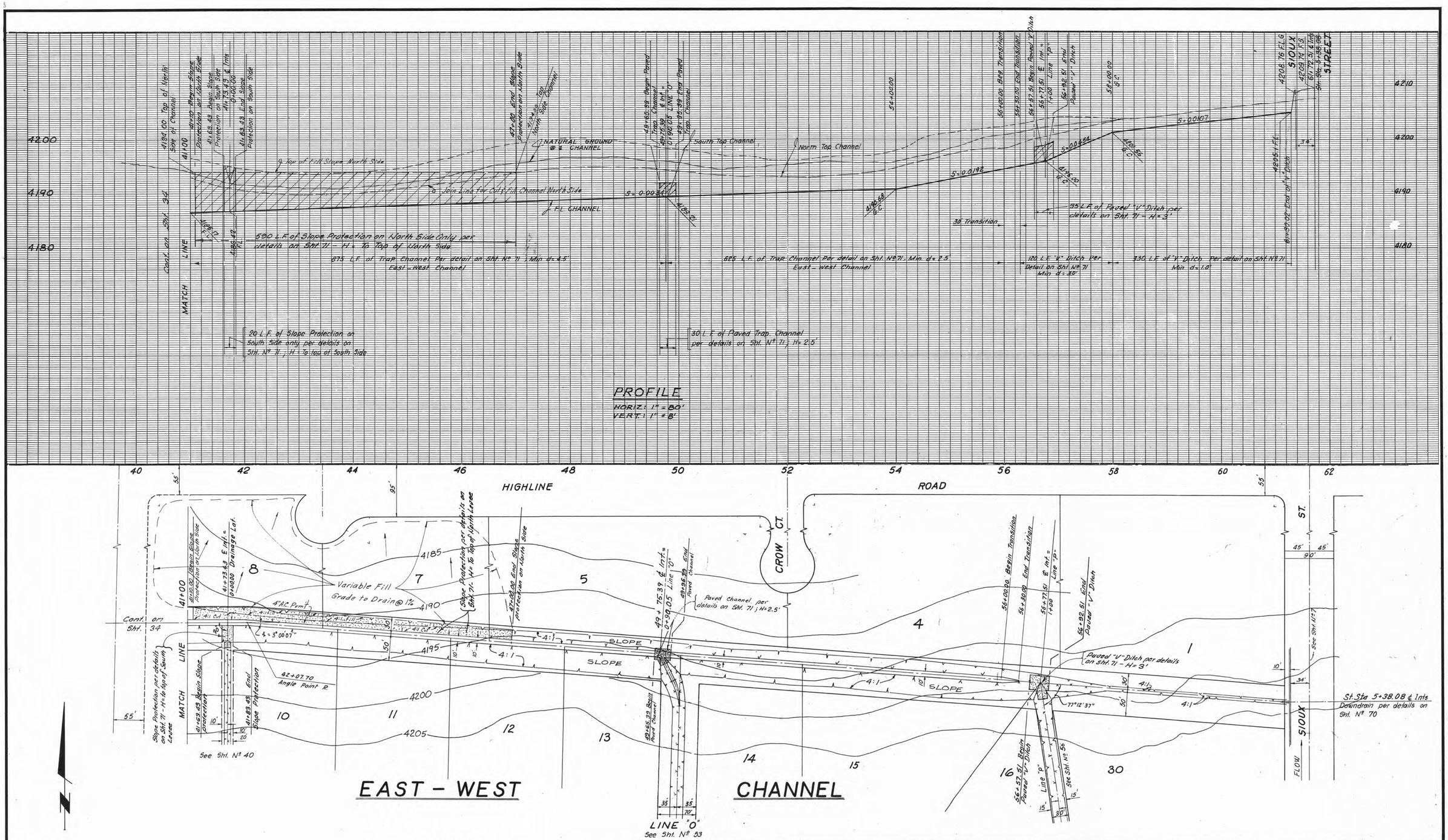
REVISED BY _____ RE. NO. _____
APPROVED _____ DATE _____

KERN COUNTY CALIFORNIA

PLAN AND PROFILE

EXHIBIT "A"-2

TR. 3116	STORM DRAIN	SHT 34 of 71 SHTS



PLAN
Scale: 1" = 80'

Approved By Dept of Highways & Bridges

APPROVED _____ R.C.E. Date

McINTIRE & QUIROS INC.
670 MONTEREY PASS RD. MONTEREY PARK, CALIF.
283-7611

BY: _____ APPROVED BY R.E. 16589 10-2-67

COUNTY SURVEYOR _____ Deputy 7-1-68

REVISIONS

8-28-68

REVISED BY _____ RE. NO. _____
APPROVED _____ DATE _____

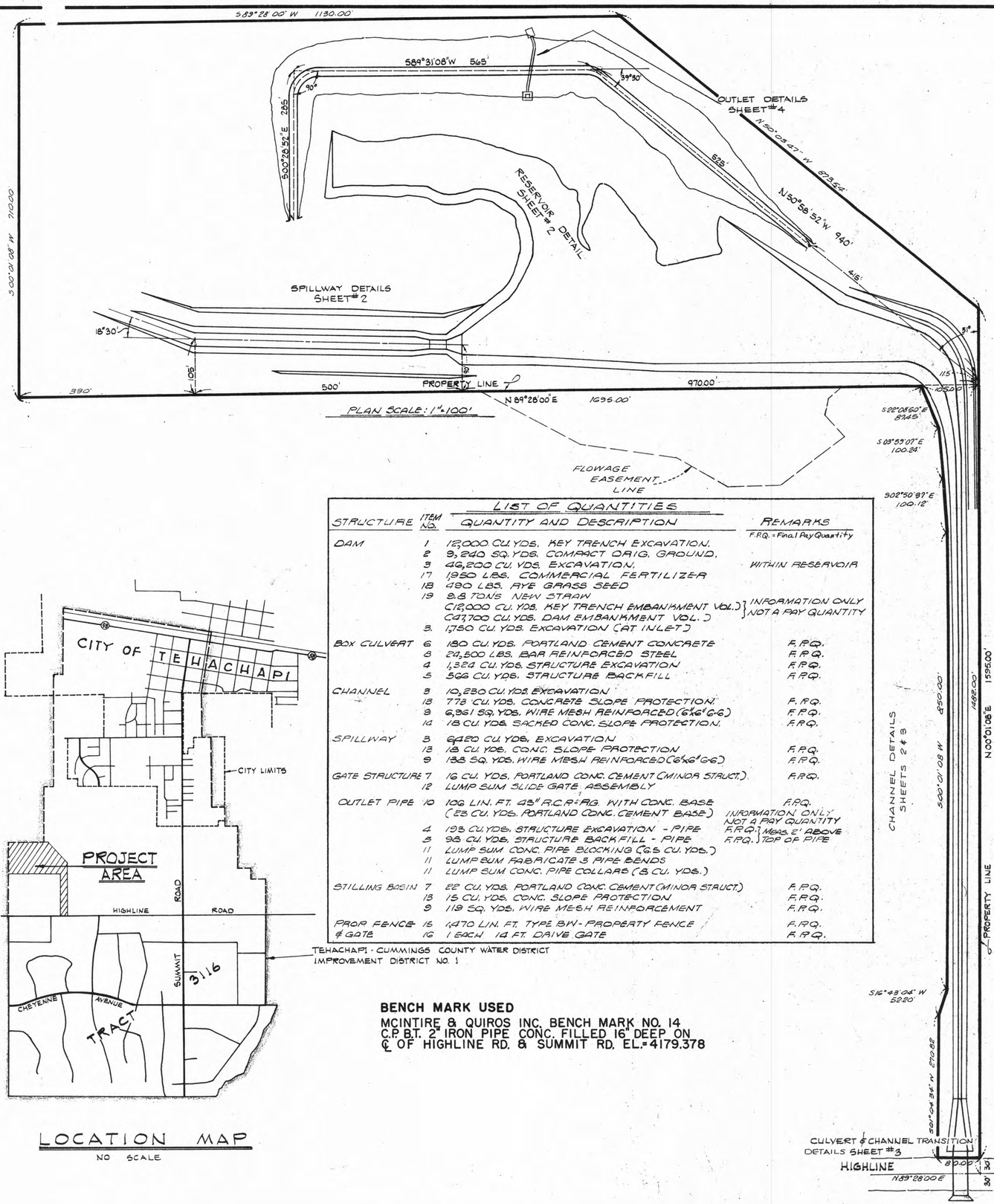
REVISED BY _____ RE. NO. _____
APPROVED _____ DATE _____

KERN COUNTY CALIFORNIA
PLAN AND PROFILE
EXHIBIT "A"2

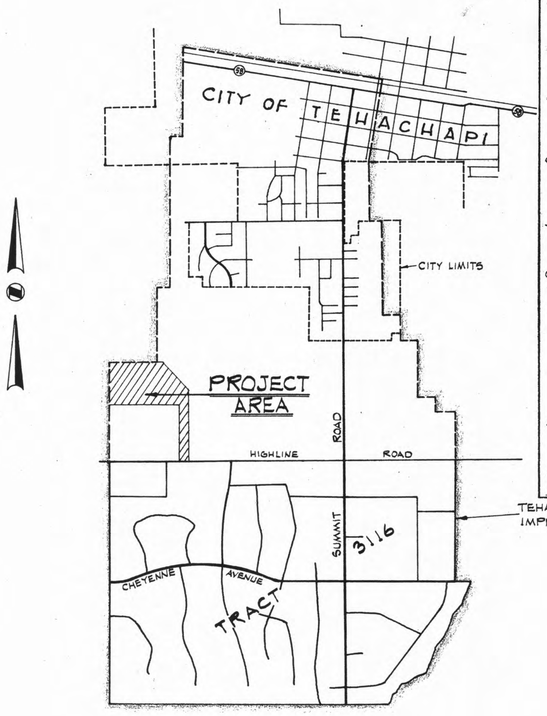
TR. 3116 | STORM DRAIN | SHT 35 of 71 SHTS

EXHIBITS A-1, A-2, A-3 TO JULY 1, 1969 AGREEMENT OF COUNTY - BOISE - T.CCWD

TEHACHAPI · CUMMINGS COUNTY WATER DISTRICT IMPROVEMENT DISTRICT NO. 1 FLOOD CONTROL FACILITIES



STRUCTURE	ITEM NO.	LIST OF QUANTITIES — QUANTITY AND DESCRIPTION	REMARKS (F.P.Q. = Final Pay Quantity)
DAM	1	12,000 CU. YDS. KEY TRENCH EXCAVATION.	
	2	9,240 SQ. YDS. COMPACT ORIG. GROUND.	
	3	46,200 CU. YDS. EXCAVATION.	WITHIN RESERVOIR
	17	1950 LBS. COMMERCIAL FERTILIZER	
	18	490 LBS. RYE GRASS SEED	
	19	9.8 TONS NEW STRAW	
		(12,000 CU. YDS. KEY TRENCH EMBANKMENT VOL.)	INFORMATION ONLY NOT A PAY QUANTITY
		(37,700 CU. YDS. DAM EMBANKMENT VOL.)	
	3.	1,750 CU. YDS. EXCAVATION (AT INLET)	
BOX CULVERT	6	180 CU. YDS. PORTLAND CEMENT CONCRETE	F.P.Q.
	8	24,500 LBS. BAR REINFORCED STEEL	F.P.Q.
	4	1,324 CU. YDS. STRUCTURE EXCAVATION	F.P.Q.
	5	566 CU. YDS. STRUCTURE BACKFILL	F.P.Q.
CHANNEL	3	10,230 CU. YDS. EXCAVATION	
	18	778 CU. YDS. CONCRETE SLOPE PROTECTION.	F.P.Q.
	9	6,961 SQ. YDS. WIRE MESH REINFORCED (6"x6" G-6)	F.P.Q.
	14	18 CU. YDS. SACKED CONC. SLOPE PROTECTION.	F.P.Q.
SPILLWAY	3	6,820 CU. YDS. EXCAVATION	
	18	18 CU. YDS. CONC. SLOPE PROTECTION	F.P.Q.
	9	138 SQ. YDS. WIRE MESH REINFORCED (6"x6" G-6)	F.P.Q.
GATE STRUCTURE	7	16 CU. YDS. PORTLAND CONC. CEMENT (MINOR STRUCT.)	F.P.Q.
	12	LUMP SUM SLIDE GATE ASSEMBLY	
OUTLET PIPE	10	106 LIN. FT. 48" R.C.P. REQ. WITH CONC. BASE (23 CU. YDS. PORTLAND CONC. CEMENT BASE)	F.P.Q.
	4	193 CU. YDS. STRUCTURE EXCAVATION - PIPE	INFORMATION ONLY NOT A PAY QUANTITY; F.P.Q. } Meas. 2' ABOVE
	3	98 CU. YDS. STRUCTURE BACKFILL - PIPE	F.P.Q. } TOP OF PIPE
	11	LUMP SUM CONC. PIPE BLOCKING (6.5 CU. YDS.)	
	11	LUMP SUM FABRICATE 3 PIPE BENDS	
	11	LUMP SUM CONC. PIPE COLLARS (8 CU. YDS.)	
STILLING BASIN	7	22 CU. YDS. PORTLAND CONC. CEMENT (MINOR STRUCT.)	F.P.Q.
	18	15 CU. YDS. CONC. SLOPE PROTECTION	F.P.Q.
	9	119 SQ. YDS. WIRE MESH REINFORCEMENT	F.P.Q.
PROP FENCE & GATE	15	1,470 LIN. FT. TYPE BW - PROPERTY FENCE	F.P.Q.
	16	1 EACH 14 FT. DRIVE GATE	F.P.Q.



TEHACHAPI · CUMMINGS COUNTY WATER DISTRICT IMPROVEMENT DISTRICT NO. 1

LOCATION MAP

NO SCALE

BENCH MARK USED

MCINTIRE & QUIROS INC. BENCH MARK NO. 14
C.P.B.T. 2" IRON PIPE CONC. FILLED 16" DEEP ON
℄ OF HIGHLINE RD. & SUMMIT RD. EL.=4179.378

APPROVED BY: TEHACHAPI CUMMINGS COUNTY WATER DISTRICT

J.C. Jacobsen Jr.

J.C. JACOBSEN JR., PRESIDENT OF BOARD

Robert J. Jasper

R.J. JASPER, GENERAL MANAGER-SECRETARY

J.C. Reaves

J.C. REAVES JR., ENGINEER OF WORK
R.C.E. 6549

APPROVED BY: COUNTY OF KERN

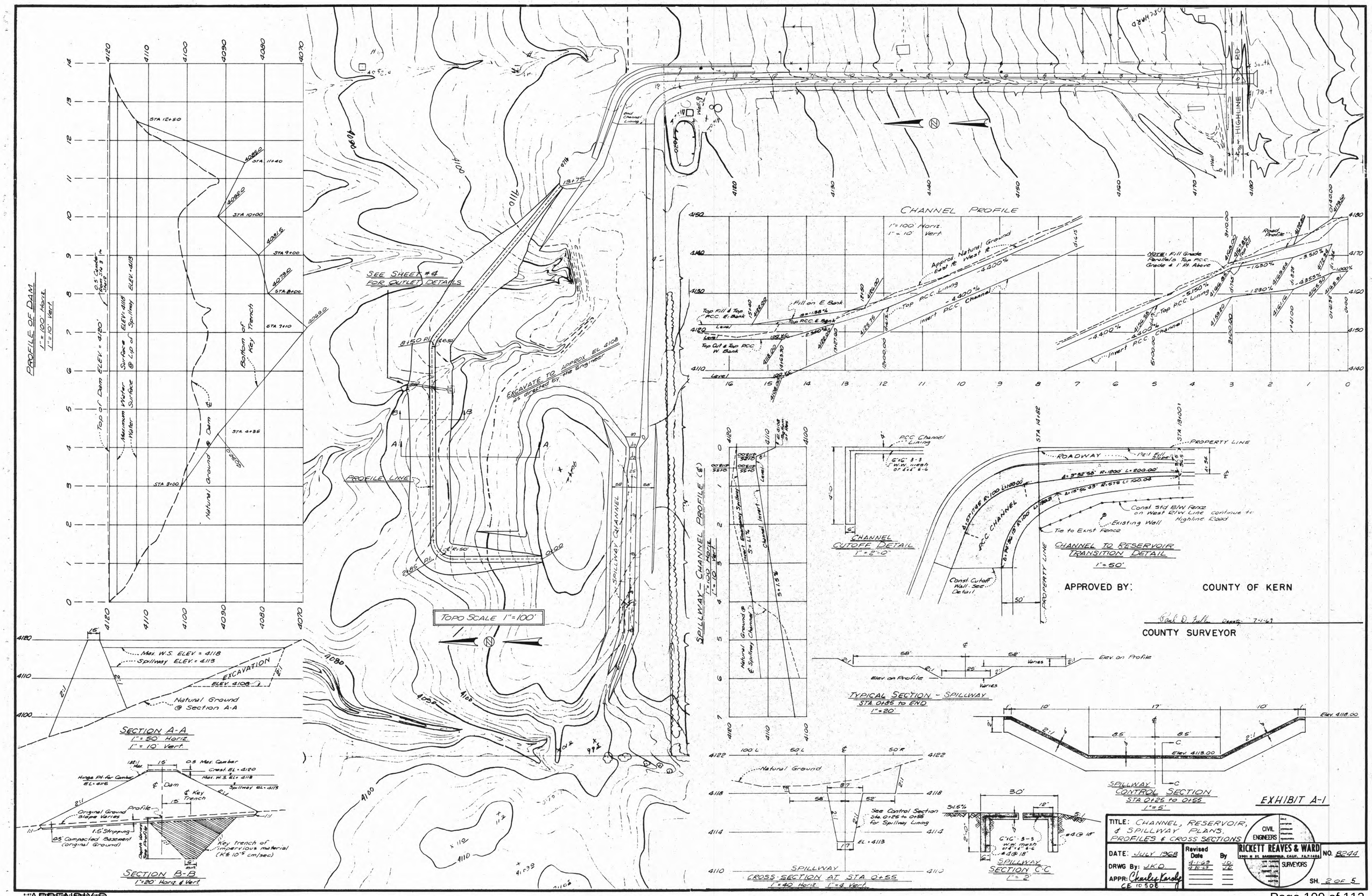
Paul D. Fuller - Deputy 7-1-69

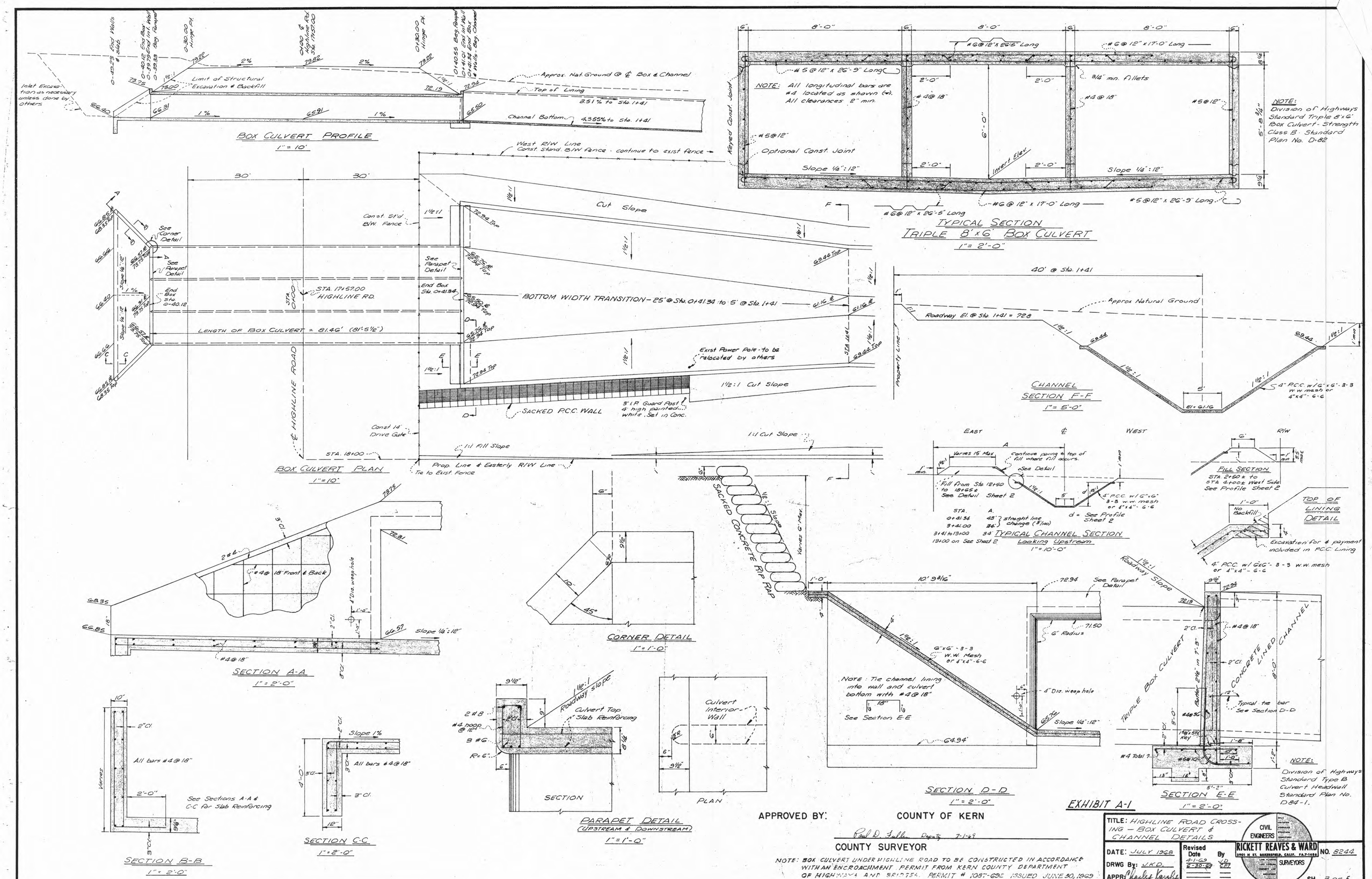
COUNTY SURVEYOR

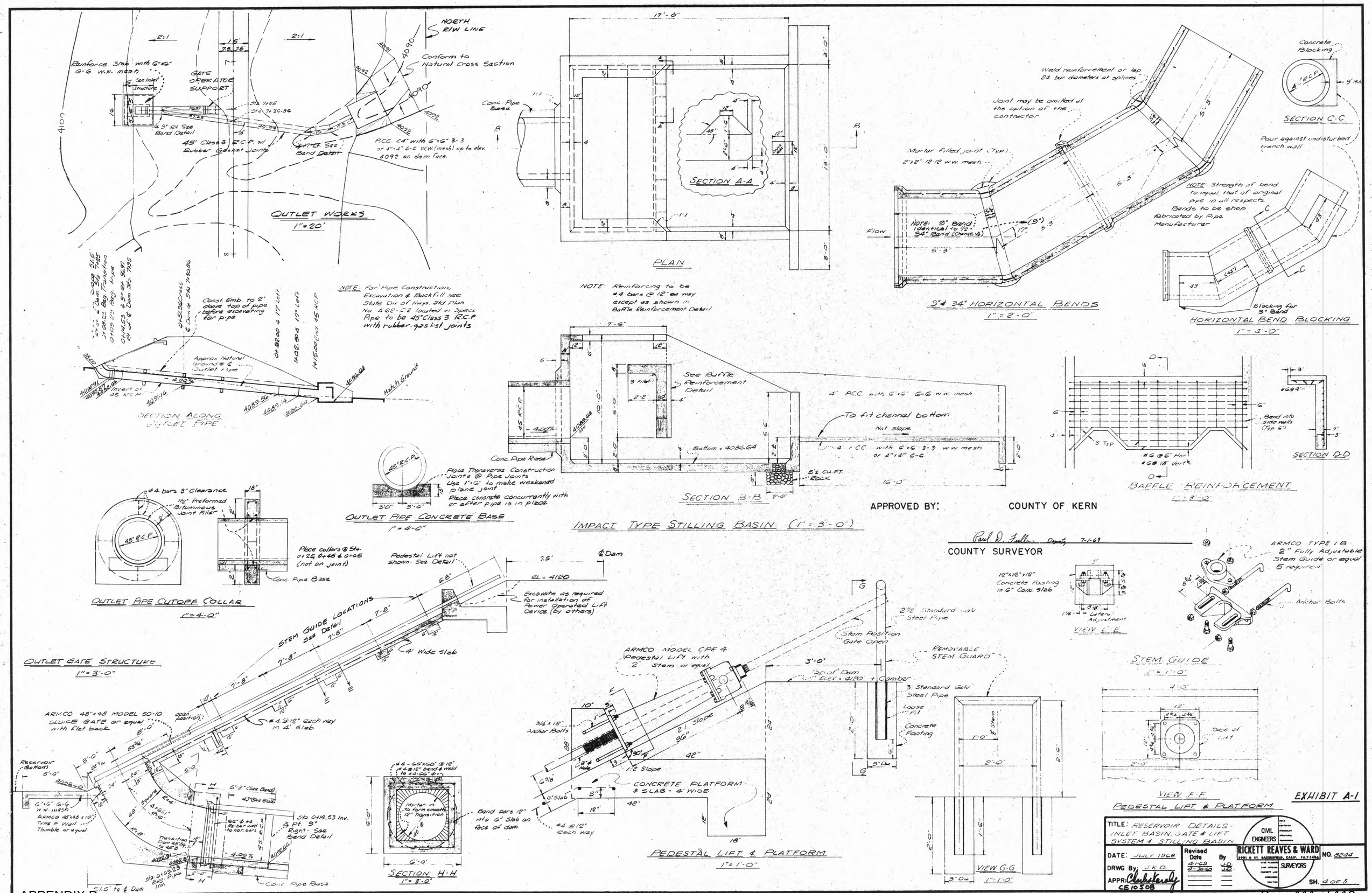
EXHIBIT A-1

DATE: JULY 3, 1968	Revised Date	By
DRWG By: DAVE	4-1-69	J.D.
APPR: Charles Hardy CE 10508	4-10-69	JAE/J.D.

CIVIL ENGINEERS — RICKETT REAVES & WARD — 3901 H ST. BAKERSFIELD, CALIF. PA.7-1484 — SURVEYORS — NO. 8244 — SH. 1 OF 5


PROFILE OF DAM
1" = 100' Horiz.
1" = 10' Vert.
Top of Dam ELEV = 4120'
Maximum Water Surface
Water Surface @ L.P. of Spillway
ELEV. 4118
ELEV. 4113
Natural Ground @ ℄ Dam
Bottom of Key Trench
STA 12+50
STA 11+40
STA 10+00
STA 9+00
STA 8+00
STA 7+10
STA 4+35
STA 3+00
SEE SHEET #4 FOR OUTLET DETAILS
EXCAVATE TO APPROX. EL. 4108 as directed by the Engineer
PROFILE LINE
SPILLWAY CHANNEL
TOPO SCALE 1" = 100'
HIGHLINE RD.
CHANNEL PROFILE
1" = 100' Horiz.
1" = 10' Vert.
Approx. Natural Ground East & West
Fill on E. Bank
Top Fill & Top PCC. E. Bank
Top Cut & Top PCC. W. Bank
Top PCC. Lining
Invert PCC. Channel
NOTE: Fill Grade Parallels Top PCC. Grade & 1 Ft. Above
Road Profile
SPILLWAY - CHANNEL PROFILE (℄)
1" = 100' Horiz.
1" = 10' Vert.
Natural Ground @ ℄ Spillway
Channel Invert
Emergency Spillway
CHANNEL CUTOFF DETAIL
1" = 2'-0"
PCC Channel Lining
CHANNEL TO RESERVOIR TRANSITION DETAIL
1" = 50'
ROADWAY
PROPERTY LINE
PCC CHANNEL
Const Std B/W Fence on West R/W Line continue to Highline Road
Existing Wall
Tie to Exist. Fence
Const Cutoff Wall See Detail
APPROVED BY:
COUNTY OF KERN
COUNTY SURVEYOR
TYPICAL SECTION - SPILLWAY
STA 0+85 to END
1" = 20'
Elev. on Profile
SECTION A-A
1" = 50' Horiz.
1" = 10' Vert.
Max. W.S. ELEV. = 4118
Spillway ELEV. = 4113
EXCAVATION
ELEV. 4108
Natural Ground @ Section A-A
SECTION B-B
1" = 20' Horiz. & Vert.
Hinge Pt. for Camber EL. 4116
Crest EL. = 4120
Max. W.S. EL. = 4118
Spillway EL. = 4113
Original Ground Slope Varies
Profile
1.5' Stripping
0.5' Compacted Basement (Original Ground)
Key trench of impervious material (K ≤ 10⁻⁵ cm/sec)
SPILLWAY CROSS SECTION AT STA 0+55
1" = 40' Horiz. 1" = 4' Vert.
See Control Section Sta. 0+25 to 0+55 for Spillway Lining
Natural Ground
EL. 4113
SPILLWAY SECTION C-C
1" = 2'
SPILLWAY CONTROL SECTION
STA 0+25 to 0+55
1" = 5'
Elev. 4118.00
EXHIBIT A-1
TITLE: CHANNEL, RESERVOIR, & SPILLWAY PLANS, PROFILES & CROSS SECTIONS
DATE: JULY 1968
DRWG By: J.K.D.
APPR: Charles Kovolyk CE 10508
Revised Date By
4-1-69 J.D.
4-10-69 J.D.
RICKETT REAVES & WARD
3901 S. ST. BAKERSFIELD, CALIF. FA 7-1484
CIVIL ENGINEERS
SURVEYORS
NO. 8244
SH. 2 OF 5


BOX CULVERT PROFILE
1" = 10'
Inlet Excavation as necessary unless done by others
Limit of Structural Excavation & Backfill
Approx. Nat. Ground @ ℄ Box & Channel
Top of Lining
8.51% to Sta. 1+41
Channel Bottom
4.355% to Sta. 1+41
TYPICAL SECTION
TRIPLE 8'x6' BOX CULVERT
1" = 2'-0"
Keyed Const. Joint
Optional Const. Joint
Slope 1/4":12"
Invert Elev.
NOTE: All longitudinal bars are #4 located as shown (•). All clearances 2" min.
NOTE: Division of Highways Standard Triple 8'x6' Box Culvert - Strength Class B. Standard Plan No. D-82
West R/W Line
Const. Stand. B/W Fence - continue to exist fence
Cut Slope
BOTTOM WIDTH TRANSITION - 25' @ Sta. 0+41.34 to 5' @ Sta. 1+41
LENGTH OF BOX CULVERT = 81.46' (81'-5 1/2")
STA. 17+57.00 HIGHLINE RD.
Exist Power Pole - to be relocated by others
1 1/2:1 Cut Slope
SACKED P.C.C. WALL
3" I.P. Guard Post 4' high painted white. Set in Conc.
Const. 14' Drive Gate
1:1 Fill Slope
1:1 Cut Slope
STA. 18+00
Prop. Line & Easterly R/W Line
Tie to Exist. Fence
℄ HIGHLINE ROAD
BOX CULVERT PLAN
1" = 10'
CHANNEL SECTION F-F
1" = 5'-0"
40' @ Sta. 1+41
Approx Natural Ground
Roadway El. @ Sta. 1+41 = 72.8
Property Line
4" PCC w/ 6"x6" - 3-3 W.W. mesh or 4"x4" - 6-6
EAST ℄ WEST
Varies 15' Max.
continue paving & top of fill where fill occurs.
See Detail
Fill from Sta 12+50 to 18+65± See Detail Sheet 2
d = See Profile Sheet 2
STA. A.
0+41.34 43'
3+41.00 34'
straight line change (3/100)
3+41 to 13+00 34'
13+00 on See Sheet 2
TYPICAL CHANNEL SECTION
Looking Upstream
1" = 10'-0"
FILL SECTION
STA 2+50± to STA 4+00± West Side
See Profile Sheet 2
TOP OF LINING DETAIL
Excavation for & payment included in P.C.C. Lining
SECTION A-A
1" = 2'-0"
CORNER DETAIL
1" = 1'-0"
SACKED CONCRETE RIP RAP
Varies 6' Max.
1:1 Slope
SECTION D-D
1" = 2'-0"
See Parapet Detail
Note: Tie channel lining into wall and culvert bottom with #4@18"
See Section E-E
Slope 1/4":12"
Roadway Slope
TRIPLE BOX CULVERT
CONCRETE LINED CHANNEL
SECTION E-E
1" = 2'-0"
NOTE: Division of Highways Standard Type B Culvert Headwall Standard Plan No. D84-1.
SECTION B-B
1" = 2'-0"
All bars #4@18"
See Sections A-A & C-C for Slab Reinforcing
SECTION C-C
1" = 2'-0"
Slope 1%
All bars #4@18"
PARAPET DETAIL
(UPSTREAM & DOWNSTREAM)
1" = 1'-0"
Culvert Top Slab Reinforcing
Roadway slope
SECTION
Culvert Interior Wall
PLAN
APPROVED BY:
COUNTY OF KERN
Paul D. Fulks Deputy 7-1-69
COUNTY SURVEYOR
NOTE: BOX CULVERT UNDER HIGHLINE ROAD TO BE CONSTRUCTED IN ACCORDANCE WITH AN ENCROACHMENT PERMIT FROM KERN COUNTY DEPARTMENT OF HIGHWAYS AND BRIDGES. PERMIT # 1087-692 ISSUED JUNE 30, 1969
EXHIBIT A-1
TITLE: HIGHLINE ROAD CROSSING - BOX CULVERT & CHANNEL DETAILS
DATE: JULY 1968
DRWG By: JKD
APPR: Charles Varsly CE 10508
Revised Date By
4-1-69 JB
2-20-69 JB
RICKETT REAVES & WARD
CIVIL ENGINEERS
3901 H ST. BAKERSFIELD, CALIF. FA 7-1456
LAND PLANNERS LAND SURVEYORS
NO. 8244
SH. 3 of 5


OUTLET WORKS
1" = 20'
NORTH R/W LINE
Conform to Natural Cross Section
Reinforce Slab with 6"x6" 6-6 W.W. mesh
See Inlet Structure
GATE OPERATOR SUPPORT
45" Class 3 R.C.P. w/ Rubber Gasket Joints
See Band Detail
P.C.C. C4" with 6"x6" 3-3 or 4"x4" 6-6 W.W. (mesh) up to elev. 4092 on dam face.
NOTE: For Pipe Construction, Excavation & Backfill see State Div. of Hwys. Std Plan No. A62-C2 located in Specs. Pipe to be 45" Class 3 R.C.P. with rubber-gasket joints
Const. Emb. to 2' above top of pipe before excavating for pipe
Approx. Natural Ground @ ℄ Outlet Pipe
Invert of 45" R.C.P.
Natural Ground
SECTION ALONG OUTLET PIPE
PLAN
Conc. Pipe Base
SECTION A-A
NOTE: Reinforcing to be #4 bars @ 12" each way except as shown in Baffle Reinforcement Detail
See Baffle Reinforcement Detail
4" P.C.C. with 6"x6" 6-6 W.W. mesh
To fit channel bottom
Nat. slope
Bottom = 4086.64
4" P.C.C. with 6"x6" 3-3 W.W. mesh or 4"x4" 6-6
5± CU. FT. Rock
SECTION B-B
IMPACT TYPE STILLING BASIN (1" = 3'-0")
Place Transverse Construction Joints @ Pipe Joints. Use 1"x6" to make weakened plane joint. Place concrete concurrently with or after pipe is in place
OUTLET PIPE CONCRETE BASE
1" = 4'-0"
#4 bars 3" Clearance
1/2" Preformed Bituminous Joint Filler
Place collars @ Sta. 0+25, 0+45 & 0+65 (not on joint)
Conc. Pipe Base
OUTLET PIPE CUTOFF COLLAR
1" = 4'-0"
Pedestal Lift not shown. See Detail
℄ Dam
EL. = 4120
Excavate as required for installation of Power Operated Lift Device (by others)
STEM GUIDE LOCATIONS See Detail
4' Wide Slab
OUTLET GATE STRUCTURE
1" = 3'-0"
ARMCO 48"x48" MODEL 50-10 SLUICE GATE or equal with flat back
Open position
#4 @ 12" each way in 4' slab
Reservoir Bottom 5'-0"
6"x6" 6-6 W.W. mesh
ARMCO 48"x48"x10" Type E Wall Thimble or equal
Transition from 48" Sq. to 42" ⌀
Sta. 0+14.53 Inv. Pt. 9" Right - See Bend Detail
Sta. 0+05.03 Pipe Bwd. Inv.
Conc. Pipe Base
51.5' to ℄ Dam
Mortar in To form smooth 12" Transition
Bend bars 12" into 6" Slab on face of dam
SECTION H-H
1" = 3'-0"
ARMCO MODEL CPE 4 Pedestal Lift with 2" Stem or equal
3 1/2"x12" Anchor Bolts
2:1 Slope
1:2 Slope
CONCRETE PLATFORM & SLAB - 4' WIDE
#4 @ 12" Each way
PEDESTAL LIFT & PLATFORM
1" = 1'-0"
2 1/2" Standard Galv. Steel Pipe
Stem Position Gate Open
REMOVABLE STEM GUARD
3" Standard Galv. Steel Pipe
Loose F.I.
Concrete Footing
VIEW G-G
1" = 1'-0"
12"x12"x12" Concrete Footing in 6" Conc. Slab
Lateral Adjustment
VIEW E-E
ARMCO TYPE 1B 2" Fully Adjustable Stem Guide or equal 5 required
Anchor Bolts
STEM GUIDE
1" = 1'-0"
Base of Lift
VIEW F-F
PEDESTAL LIFT & PLATFORM
Weld reinforcement or lap 24 bar diameters at splices
Joint may be omitted at the option of the contractor
Mortar filled joint (Typ.)
2"x2" 12-12 W.W. mesh
NOTE: 9" Bend identical to 1/2 34" Bend (Change ⌀)
Flow
9"⌀ 34" HORIZONTAL BENDS
1" = 2'-0"
Concrete Blocking
SECTION C-C
Pour against undisturbed trench wall
NOTE: Strength of bend to equal that of original pipe in all respects. Bends to be shop fabricated by Pipe Manufacturer
Blocking for 9" Bend
HORIZONTAL BEND BLOCKING
1" = 4'-0"
Bend into side walls (Typ. 6')
#6@6" Hor. #6@18" Vert.
BAFFLE REINFORCEMENT
1" = 3'-0"
SECTION D-D
APPROVED BY:
COUNTY OF KERN
Paul D. Fuller Deputy 7-1-69
COUNTY SURVEYOR
TITLE: RESERVOIR DETAILS - INLET BASIN, GATE & LIFT SYSTEM & STILLING BASIN
DATE: JULY 1968
DRWG By: J.K.O.
APPR: Charles Hardy CE 10508
Revised Date 4-1-69 3-30-70
By J.K.O. J.K.O.
CIVIL ENGINEERS
RICKETT REAVES & WARD
3201 H ST. BAKERSFIELD, CALIF. FA 7-1434
SURVEYORS
NO. 8244
SH. 4 OF 5
EXHIBIT A-1

SPECIAL PROVISIONS

Specificatiors & Plans

The work embraced herein shall be done in accordance with the Standard Specifications of the Department of Public Works, Division of Highways, dated January 1969, insofar as the same may apply, and in accordance with the plans and the following special provisions. In case of conflict between the Standard Specifications and these Special Provisions, the Special Provisions shall take precedence over and be used in lieu of such conflicting portions.

Earthwork

Earthwork shall conform to the provisions of Section 19 of the Standard Specifications and these Special Provisions.

Trench Construction. The key trench shall be excavated and backfilled to the dimensions and limits as shown on the plans. The material removed from the key trench may be used in the dam embankment construction commencing at the downstream toe and shall become a part of the dam embankment. Material for backfill of the key trench shall come from material excavated on the site as approved by the Engineer. It is anticipated that material excavated from the spillway and spillway channel, the westerly portion of the reservoir excavation and the inlet channel will be suitable for use in backfilling the key trench. The Contractor shall conduct his operations so that no double handling or stockpiling of material is necessary. The Engineer shall perform tests on the material proposed to be used to backfill the key trench and his decision shall be final.

Dam Embankment. The dam embankment shall be constructed of materials excavated on the site, including the channel excavation, the spillway excavation, the reservoir excavation, the key trench excavation, and all excess structure excavation.

The area shown within the reservoir to be excavated is estimated to be the amount of additional material necessary to complete the dam embankment. This quantity will be increased or decreased as necessary to furnish sufficient material to construct the dam embankment. The dimensions shown on the plans are approximate only and may be changed as deemed necessary by the Engineer in order to furnish the required type and amount of material.

Dam Embankment Construction. Dam embankment construction shall conform to the applicable provisions of Section 19-6 of the Standard Specifications and these Special Provisions. Stripping shall be performed to the maximum dimensions as shown on the plans or as directed by the Engineer. Stripping shall immediately precede embankment construction and the material excavated may be used in embankment construction. After performing stripping as shown on the plans or as directed by the Engineer, the original ground shall be compacted to a relative compaction of 90% for a depth of 6 inches.

The dam embankment shall be constructed to the lines and grades as shown on the plans. No brush, root, sod or other perishable or unsuitable materials shall be placed in the embankment. The suitability of each part of the foundation for placing embankment materials thereon and of all materials for use in embankment construction will be determined by the Engineer. The embankment shall not be constructed more than 2 feet above the top of the outlet pipe until the outlet pipe has been installed as provided elsewhere in these Special Provisions. Each load of material placed in the embankment shall be placed in the location designated by the Engineer.

Embankment construction shall not commence until stripping has been performed, and original ground compacted as specified.

The water content of the earth-fill material prior to and during compaction shall be distributed uniformly throughout each layer of the material. The average water content shall be maintained at 2% above the optimum moisture content. The distribution and gradation of materials throughout the earth-fill shall be as directed and shall be such that the fills will be free from lenses, pockets, streaks or layers of material differing substantially in texture or gradation from the surrounding material. The materials when compacted in the earth-fill will be blended sufficiently to secure the best practicable degree of homogeneity, compaction and stability. Embankment material shall be placed as follows: Fine-grained materials containing appreciable amounts of silt and clay particles shall be placed in the upstream two-thirds of the dam. The downstream third of the dam may contain coarser materials. Cobbles and rock fragments having maximum dimensions of more than 5 inches shall not be placed in the earth-fill.

If in the opinion of the Engineer the surface of the prepared foundation or the rolled surface of any layer of earth-fill is too dry or smooth to bond properly with the layer of material to be placed thereon, it shall be moistened and/or worked in an approved manner to a sufficient depth to provide a satisfactory bonding surface before the next succeeding layer of earth-fill material is placed.

If in the opinion of the Engineer the rolled surface of any layer of the earth-fill in place is too wet for proper compaction, it shall be removed, allowed to dry or be worked to reduce the water content to the required amount, and then it shall be re-compacted before the next succeeding layer of earth-fill material is placed. No additional compensation will be allowed by reason of re-working too dry, too smooth or too wet material as above specified.

Embankment material shall be placed in continuous, approximately horizontal layers. Each layer shall be completed for the entire length from abutment to abutment before commencing construction of the next layer. The loose thickness of each layer shall be approximately 8 inches. The layer thickness may be varied as permitted or required by the Engineer in order to achieve adequate compaction by the type of compaction equipment being used. The top surface of each layer shall be crowned to provide adequate drainage during construction.

The type of compaction equipment proposed to be used shall be approved by the Engineer before start of earthwork operations. Equipment found to be not adequate to produce the desired results shall not be permitted to be used.

The entire Dam Embankment, including the Key Trench and the Stripping Work, shall be compacted to 90% relative compaction. Fill Slopes shall be compacted uniformly to 90% relative compaction, except the outer 3 to 4 inches that is to receive erosion control as specified in Section 22 of these Special Provisions.

Channel Excavation. The spillway and spillway channel and the inlet channel shall be excavated to the lines and grades as shown on the plans.

Structure Excavation & Backfill. Structure excavation and backfill shall conform to Section 19-3 of the Standard Specifications and these Special Provisions. In lieu of the requirements of Section 19-3.06 of said Standard Specifications, structure backfill material shall be as specified in Section 18 of these Special Provisions.

Concrete Structures

Concrete structures shall conform to Section 51 of the Standard Specifications and these Special Provisions.

All concrete shall be Class A.

Concrete Structures shall include the Box Culvert and Wingwalls under Highline Road as shown on Sheet 3 of the Plans, and on Sheets D82 and D84-1 located in the Appendix of these Special Provisions. Where any conflict exists, the Plans shall prevail.

Reinforced Concrete Pipe

Reinforced concrete pipe shall conform to Section 65 of the Standard Specifications and these Special Provisions. This work shall consist of furnishing and installing **45**-inch diameter, Class 3 reinforced concrete pipe with rubber gasket joints, including concrete base, cut-off collars, bends and bend blocking. The provisions of Section 65-1.08 shall apply.

Materials. Reinforced concrete pipe shall conform to the specifications of ASTM Designation: C361-66T. The pipe shall be capable of withstanding an internal hydrostatic head of 28 feet measured from the centerline of the pipe and an external loading of **25** feet of earth cover measured over the top of the pipe. Structure backfill material shall be selected by the Engineer from either structure excavation or reservoir excavation material and shall be an impervious, earthy material.

Construction. Attention is directed to Sheet A62-C.2 located in the Appendix of these Special Provisions.

Before starting pipe construction, the Dam Embankment shall be constructed to a height two feet above the top of pipe. The pipe shall then be constructed in a trench not exceeding a width equal to the outside diameter plus two feet. The pipe shall be laid on the concrete base, cutoff collars constructed, bends fabricated and installed, concrete blocking placed and backfill performed all as shown on the plans, as specified and as directed by the Engineer.

Backfill shall be placed in layers and compacted up to the top of the trench as specified in Section 19-3.06 of the Standard Specifications, except that the relative compaction shall be 90% as determined by ASTM Test #D-1557-58T, Method A. Backfill material shall be placed in intimate contact with the surfaces of the pipe and all voids filled. Compaction of backfill by ponding or jetting will not be permitted.

The intent of these specifications are to provide adequate structural support for the pipe and to prevent seepage of water through the backfill material under reservoir storage conditions. The backfill of the pipe shall be under the direction of the Engineer at all times in order to meet these requirements.

Sluice Gate Assembly

This work shall consist of furnishing and installing a 48-inch by 48-inch sluice gate and frame and appurtenances on the outlet gate structure as shown on the plans and as specified. The sluice gate assembly consists of the following items:

1 - 48"x48" medium duty sluice gate & frame, Model 50-10 with #1 Material Combination

1 - 48" square wall thimble, Type F, 10" long

5 - Stem guides, Type 1B, 2" diameter

1 - Stem assembly, **45'±** cold rolled steel with TWO bolted splices

1 - Pedestal lift, CPE-4 Standard

1 - Removable stem guard assembly

The sluice gate lift and accessories shall be of the size, type and construction as shown on the plans and as specified. They shall be Armco or approved equal.

The gate shall operate safely, properly, and with a practical degree of water tightness under a maximum head of 14 ft. of water.

Sluice gate assembly shall conform to the specifications in the Armco catalog of Water Control Gates, dated September 1968.

A copy of said specifications can be obtained from the manufacturer or a copy is available at the offices of the Engineer for review and examination by prospective bidders.

Slope Protection

Slope protection shall conform to the provisions of Section 72 of the Standard Specifications and these Special Provisions.

Sacked concrete riprap shall conform to Section 72-3, Sacked Concrete Slope Protection, of the Standard Specifications, and shall be constructed to the lines and grades as shown on the plans.

Sacked concrete slope protection will not require structure excavation or backfill

Excavation for sacked concrete slope protection will be to the limits shown on the plans.

Portland cement concrete paving shall conform to Section 72-4, Concrete Slope Protection, of the Standard Specifications and these Special Provisions. The work shall include paving with portland cement concrete the following areas, all as shown on the plans:

The channel to the reservoir from Station 0+41.34 to the cut-off wall at the inlet to the reservoir.

The spillway control section.

The outlet from the stilling basin.

Expansion joints will not be required, but scored weakened plane joints at approximately 20-foot intervals will be installed as directed by the Engineer. Portland Cement Concrete shall be Class A. ***AND SHALL REACH 3000 P.S.I. MINIMUM IN 28 DAYS.***

Property Fence

Property Fence shall conform to the provisions in Section 80-1 and 80-2 of the Standard Specifications and these Special Provisions. Fence shall be constructed as shown on the plans and Sheet A78-2 located in the Appendix of these Special Provisions, and shall be Type BW with metal posts and braces. Drive Gate shall be 54" high and shall conform to Section 80-2.01F of the Standard Specifications.

Erosion Control

Erosion control shall conform to the provisions in Section 20 of the Standard Specifications and these Special Provisions.

New straw cover material shall be uniformly spread at the rate of 4 tons per acre, slope measurement.

Stable bedding straw shall not be used.

When weather conditions are suitable, straw may be pneumatically applied by means of equipment which will not chop or shred the straw.

After the straw is incorporated in the soil, the slopes shall be rolled a minimum of 4 round trips with the roller in order to compact the outer surface.

Erosion control shall be applied to both faces of the dam for the full length and from the toe to the top of slope. Area is approximately 2.5 acres slope measurement.

Seed shall be annual rye grass and shall be spread at a rate of 200 lbs. per acre.

No seeding shall be performed during windy weather or when the ground is too wet or in an untillable condition.

Pelleted commercial fertilizer shall be a balanced fertilizer having a guaranteed analysis showing not less than 11 percent total nitrogen (as ammonic), 8 percent available phosphoric acid, and 4 percent water soluble potash.

The commercial fertilizer shall be spread at the approximate rate of 20 pounds per 1,000 square feet. The fertilizer and seed shall be spread before the straw cover material is applied. Commercial fertilizer shall not be applied until after the seed has been sown.

Topsoil will not be required.

Cultivation of the slopes will not generally be required. The outer 3 to 4 inches may be left in a loose condition during fill construction to be ready for rolling-in straw material as herein specified. Any cultivation necessary because of over-compaction of the outer layer shall be as directed by the Engineer

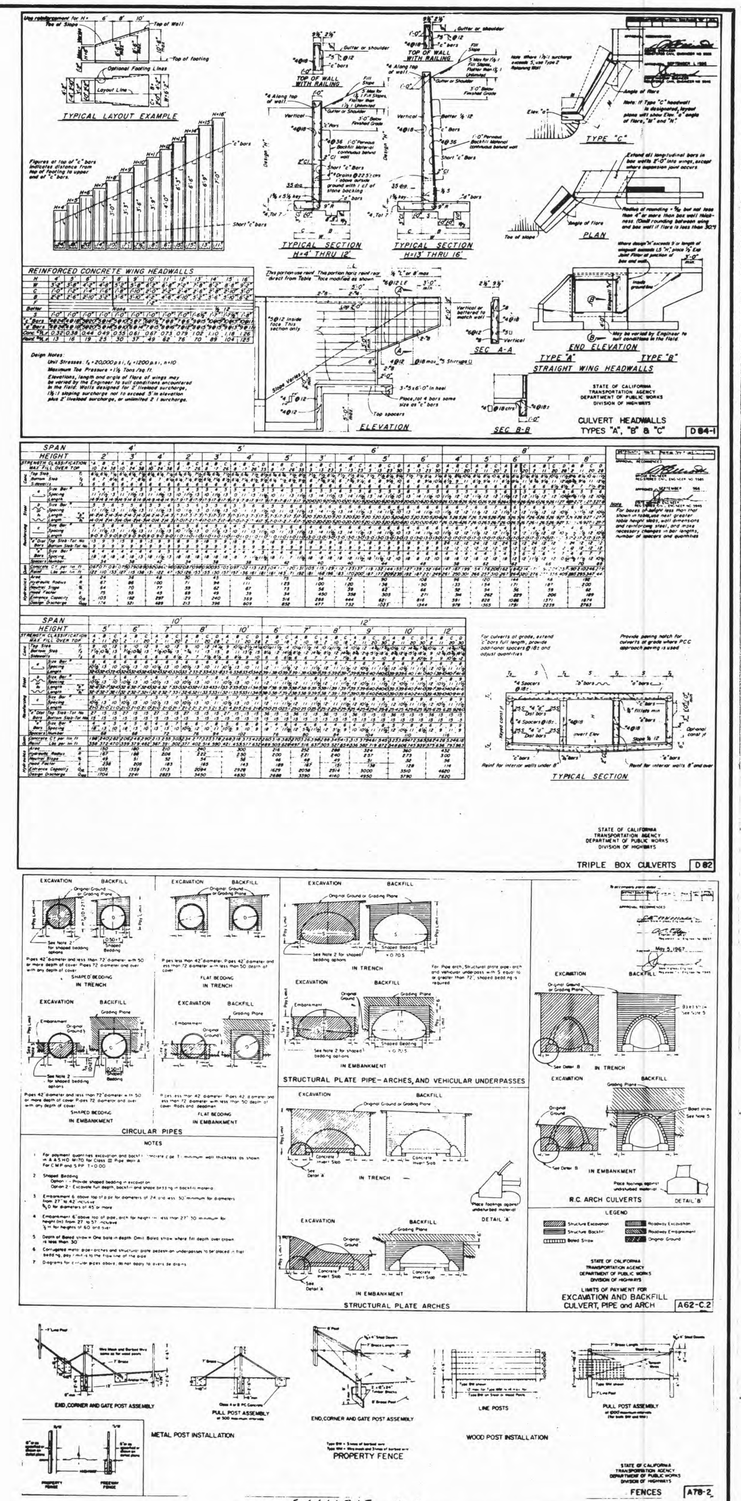


EXHIBIT A-1

SPECIAL PROVISIONS

DATE 7-1-69	Revised Date	By	RICKETT REAVES & WARD, 3901 H ST. BAKERSFIELD, CALIF. FA7-1484, CIVIL ENGINEERS, SURVEYORS
DRWG By: C P T			NO 8244
APPR: Charlie CE 10508			SH 5 of 5

Paul D. Fallon Kern Co. Surveyor 7-1-69

Appendix E:

Traffic Impact Study

TRAFFIC STUDY

SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

NORTHEAST CORNER OF TUCKER ROAD & HIGHLINE ROAD

TEHACHAPI, CA

Prepared for:

Provost & Prichard

May 2020

Prepared by:

RUETTGERS & SCHULER
CIVIL ENGINEERS

1800 30TH STREET, SUITE 260
BAKERSFIELD, CA 93301

Ian J. Parks, RCE 58155

TABLE OF CONTENTS

INTRODUCTION

The purpose of this study is to evaluate the potential traffic impact of a proposed single-family residential development in Tehachapi, California.

A. Land Use, Site and Study Area Boundaries

The proposed project consists of 237 single-family dwelling units. The current land use designation for the site is residential and the zoning is T3 (Neighborhood Edge). The site is bounded by Tucker Road to the west, Highline Road to the south, residential to the east, and undeveloped land to the north.

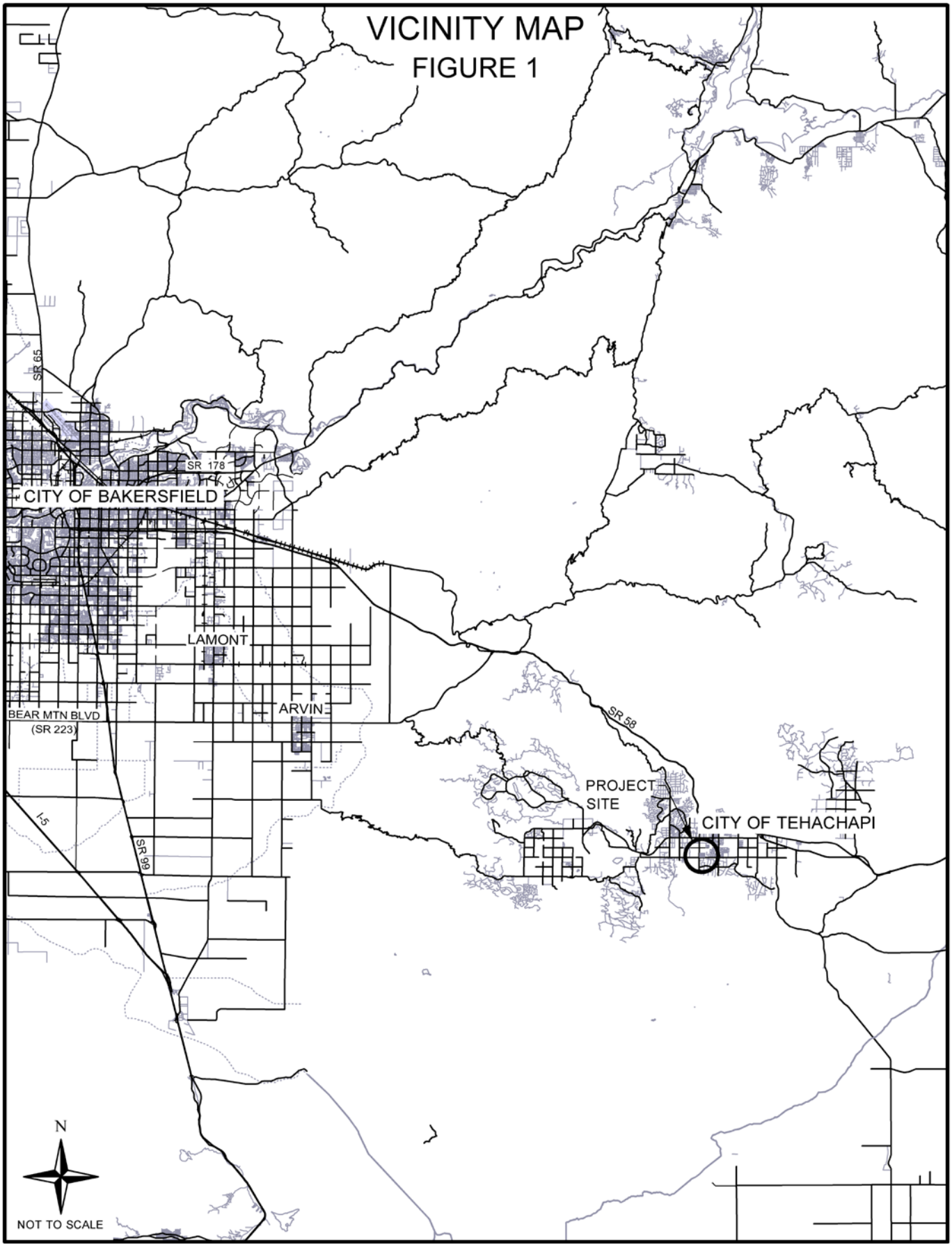
A total of three signalized intersection and three unsignalized intersections are included in the study. The scope of the study was developed in association with the City of Tehachapi and Caltrans. A vicinity map is presented in Figure 1 and a location map is presented in Figure 2.

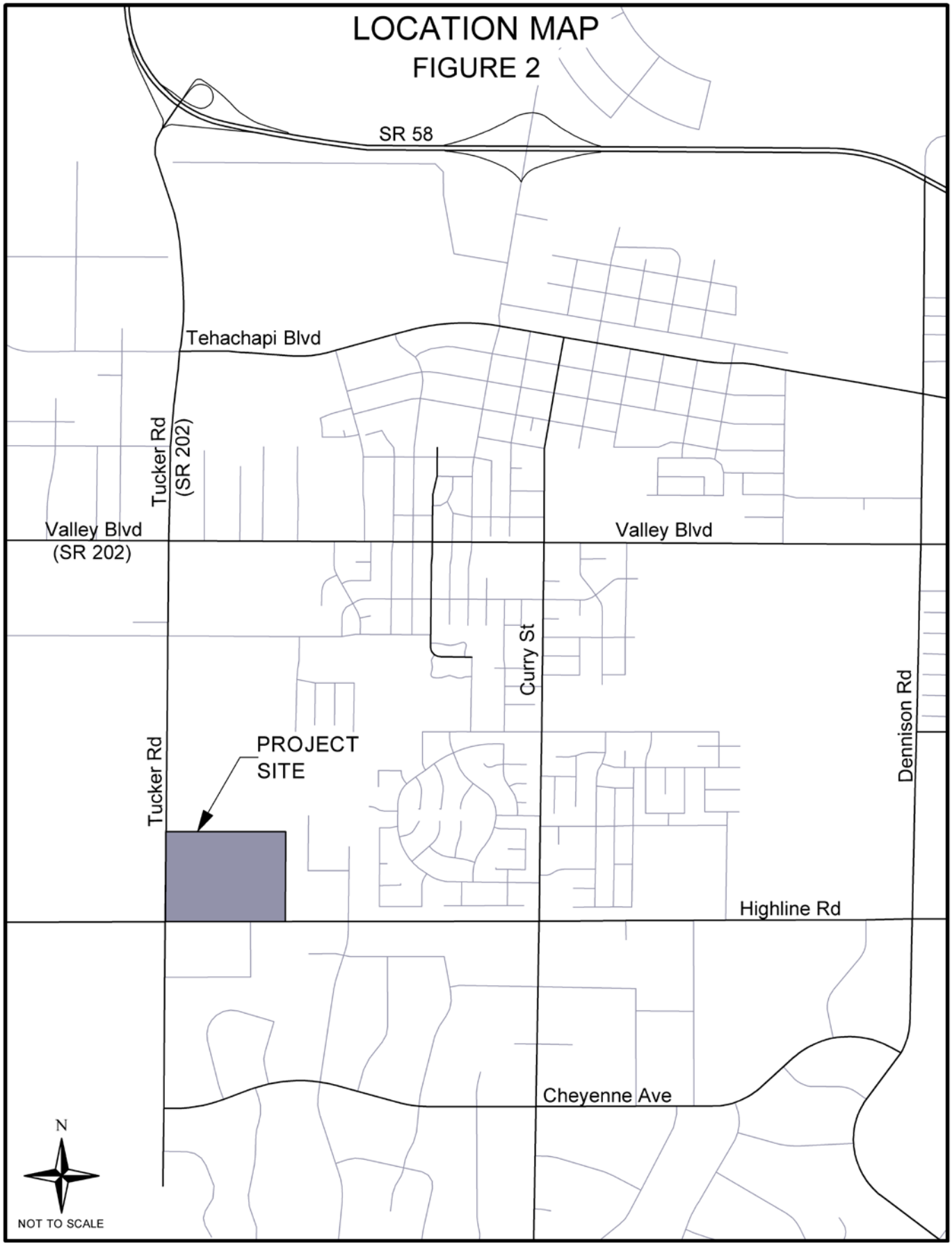
B. Existing Site Uses and Site Access

The project site is currently located within an area of undeveloped open land. Access to the proposed development is planned along Tucker Road and Highline Road. A preliminary tract layout is presented in Figure 3.

C. Existing Uses in Vicinity of the Site

Existing land uses in the vicinity of the project site are generally residential, ranging from large to small lot housing. A church exists on the southwest corner of Highline Road and Tucker Road. The project is at the south end of town. Commercial and City center uses exist to the north.


VICINITY MAP
FIGURE 1
SR 65
SR 178
CITY OF BAKERSFIELD
LAMONT
ARVIN
BEAR MTN BLVD
(SR 223)
I-5
SR 99
SR 58
PROJECT
SITE
CITY OF TEHACHAPI
N
NOT TO SCALE


LOCATION MAP
FIGURE 2
SR 58
Tehachapi Blvd
Tucker Rd
(SR 202)
Valley Blvd
(SR 202)
Valley Blvd
Curry St
Dennison Rd
PROJECT
SITE
Tucker Rd
Highline Rd
Cheyenne Ave
N
NOT TO SCALE


SITE PLAN
FIGURE 3
Orchard Pkwy
Palermo Dr
Robin Ln
Tucker Rd
Neely Ave
Legend
Roof
Upper Floor Terrace
Lower Deck
Pads Cochera Garage
Asphalt and Concrete Pavements
Private Green Space
Public Green Space
Storage Units
RV Units
Club House
Total Number of Units: 240
NORTH
Land Use Plan
The ADDRESS at Tehachapi
Engineering: LAV//Pinnacle Engineering and Consulting, Bakersfield, CA
Developer: The ADDRESS at Tehachapi, LLC Newport Beach, CA
N
NOT TO SCALE

D. Roadway Descriptions

Curry Street is a north-south collector that provides access to central and southern Tehachapi. It extends from W. Tehachapi Boulevard to Highline Road. In the vicinity of the project it exists as a two-lane roadway with curb and gutter.

Dennison Road is a north-south local arterial that provides access to agricultural and residential land uses as well as Tehachapi High School. In the vicinity of the project it exists as a two-lane roadway.

Highline Road is an east-west regional commuter route that provides access to southern Tehachapi. It extends from W. Valley Boulevard to Tehachapi Willow Springs Road and exists as a two-lane roadway in the vicinity of the project.

Red Apple Avenue is an east-west arterial that provides access to Golden Hills. It extends from Westwood Boulevard to Tucker Road and exists as two-lane roadway with curb and gutter.

Tehachapi Boulevard is a generally east-west major arterial that provides access throughout Tehachapi. It is generally exists as a four-lane roadway with curb and gutter and is also a designated transit corridor.

Tucker Road is a north-south arterial that is also known as State Route 202 north of Valley Boulevard. It extends from State Route 58 to a private residence in southern Tehachapi and provides access to commercial and residential land uses. Tucker Road is currently in various stages of construction for widening to full arterial configuration.

Valley Boulevard is a primarily east-west arterial that extends through the center of Tehachapi. It is State Route 202 west of Tucker Road. It provides access to residential and commercial land uses as well as Tehachapi High School and within the vicinity of the project it exists as a two-lane roadway.

PROJECT TRIP GENERATION AND DESIGN HOUR VOLUMES

The trip generation and design hour volumes shown in Table 1 were calculated using the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition, as well as data provided in the project proposal. The ADT, AM and PM peak hour rate equations, and peak hour directional splits for the ITE Land Use Code 210 (Single-Family Detached Housing) were used to estimate trip generation for weekday peak hour of adjacent street traffic.

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
210	Single-Family detached Housing	237 Dwelling Units	eq	2,300	eq	25% 43	75% 130	eq	63% 147	37% 86

TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution shown in Table 2 represents the likely movement of traffic accessing the project site by direction. Project traffic distribution was estimated based on a review of the proposed project land use and potential draw from population centers, as well as input from the City of Tehachapi. Assignments of project peak hour traffic to the study intersections are shown in Figure 4.

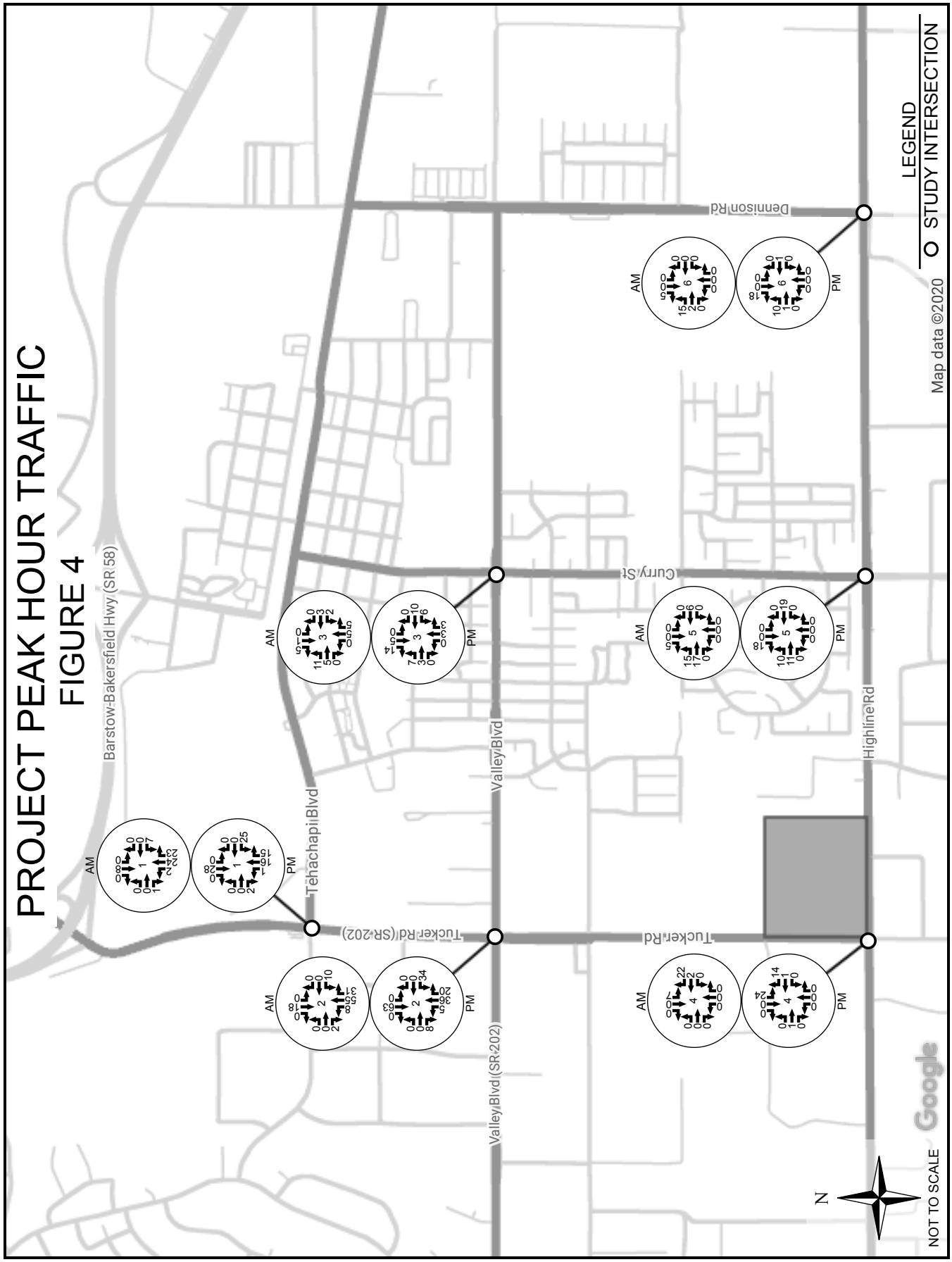
Table 2
Project Trip Distribution

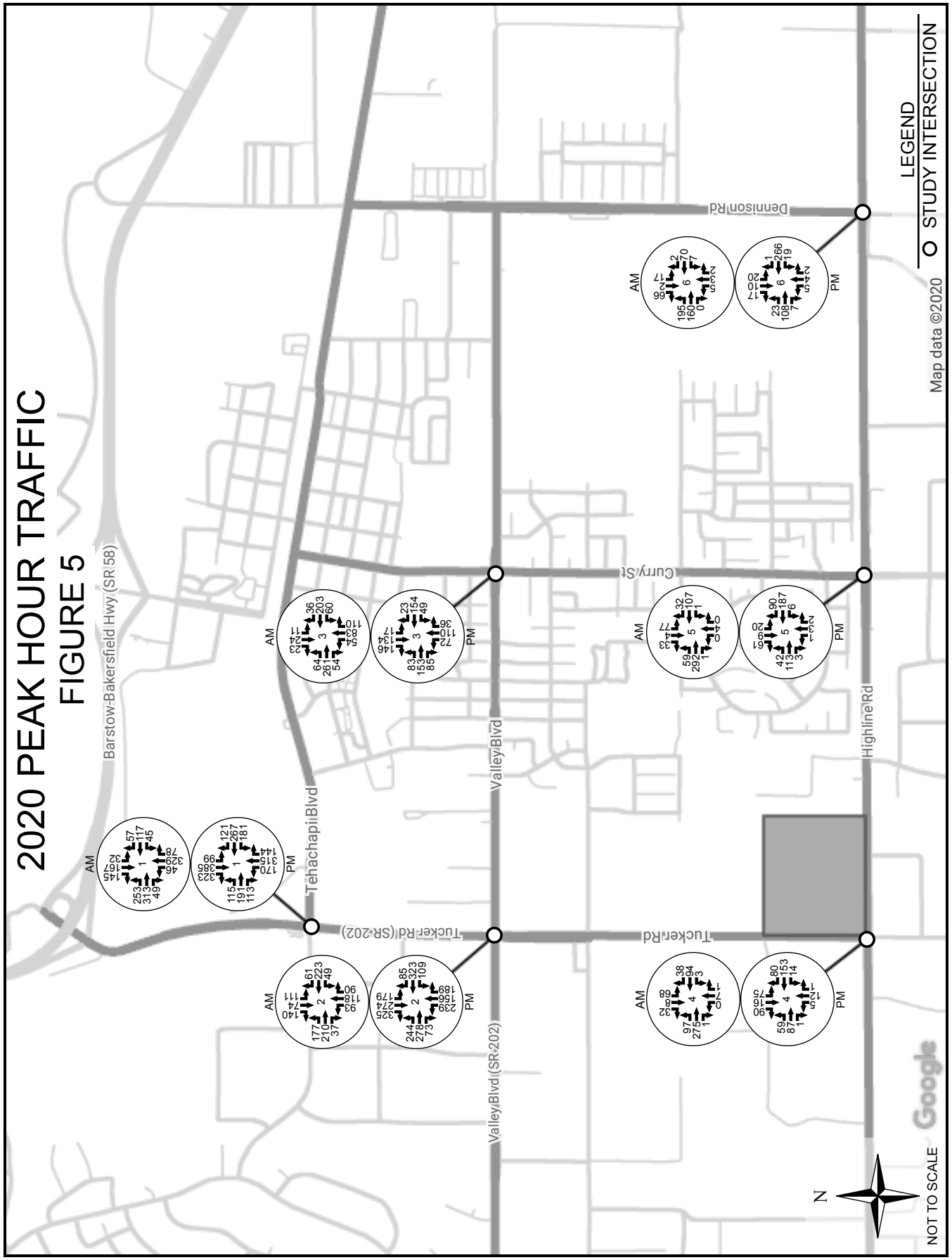
Direction	Percent	Primary Roadways
North	30	Tucker Road
South	0	-
East	50	Highline Road
West	20	Via Tucker Road Northbound

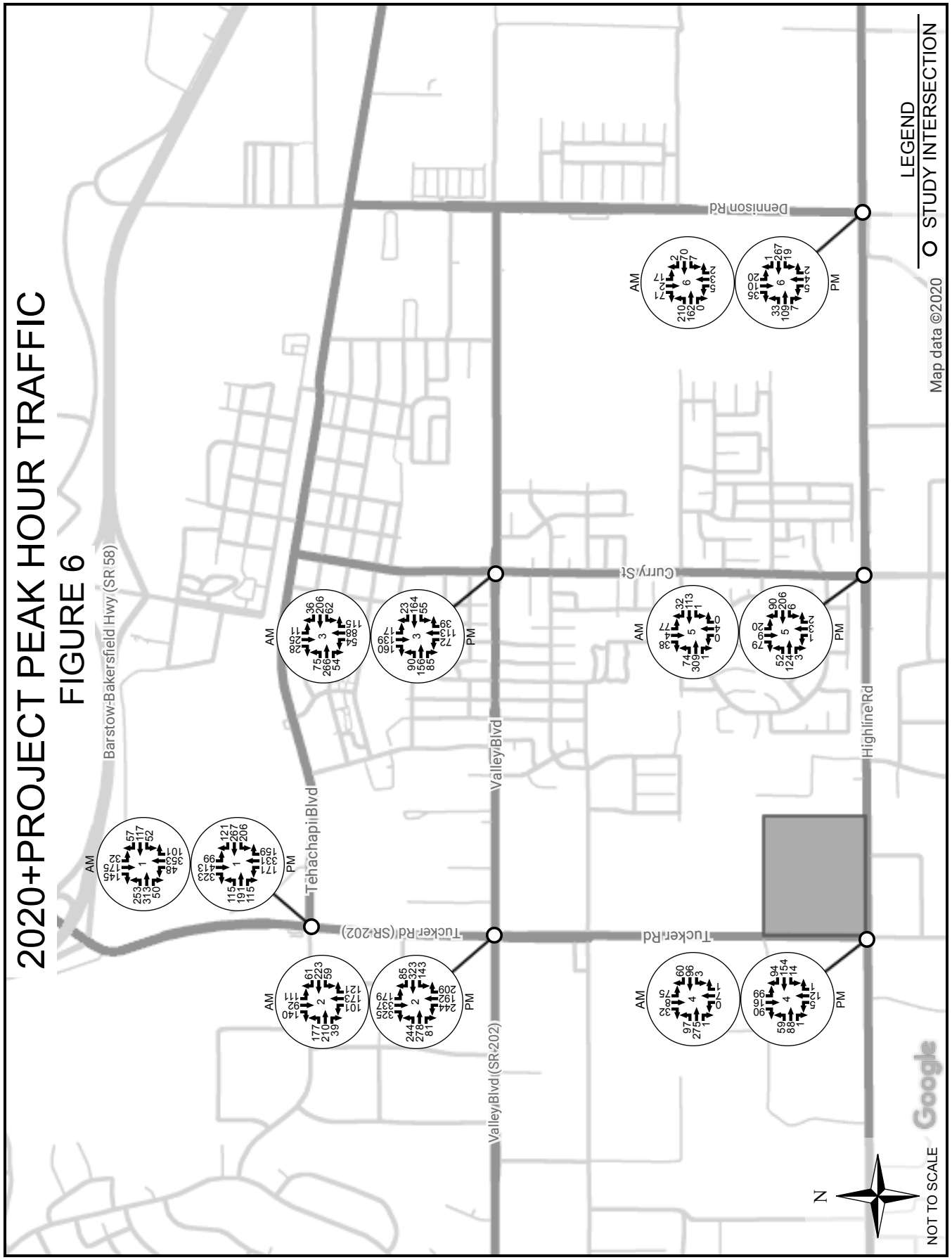
EXISTING AND FUTURE TRAFFIC

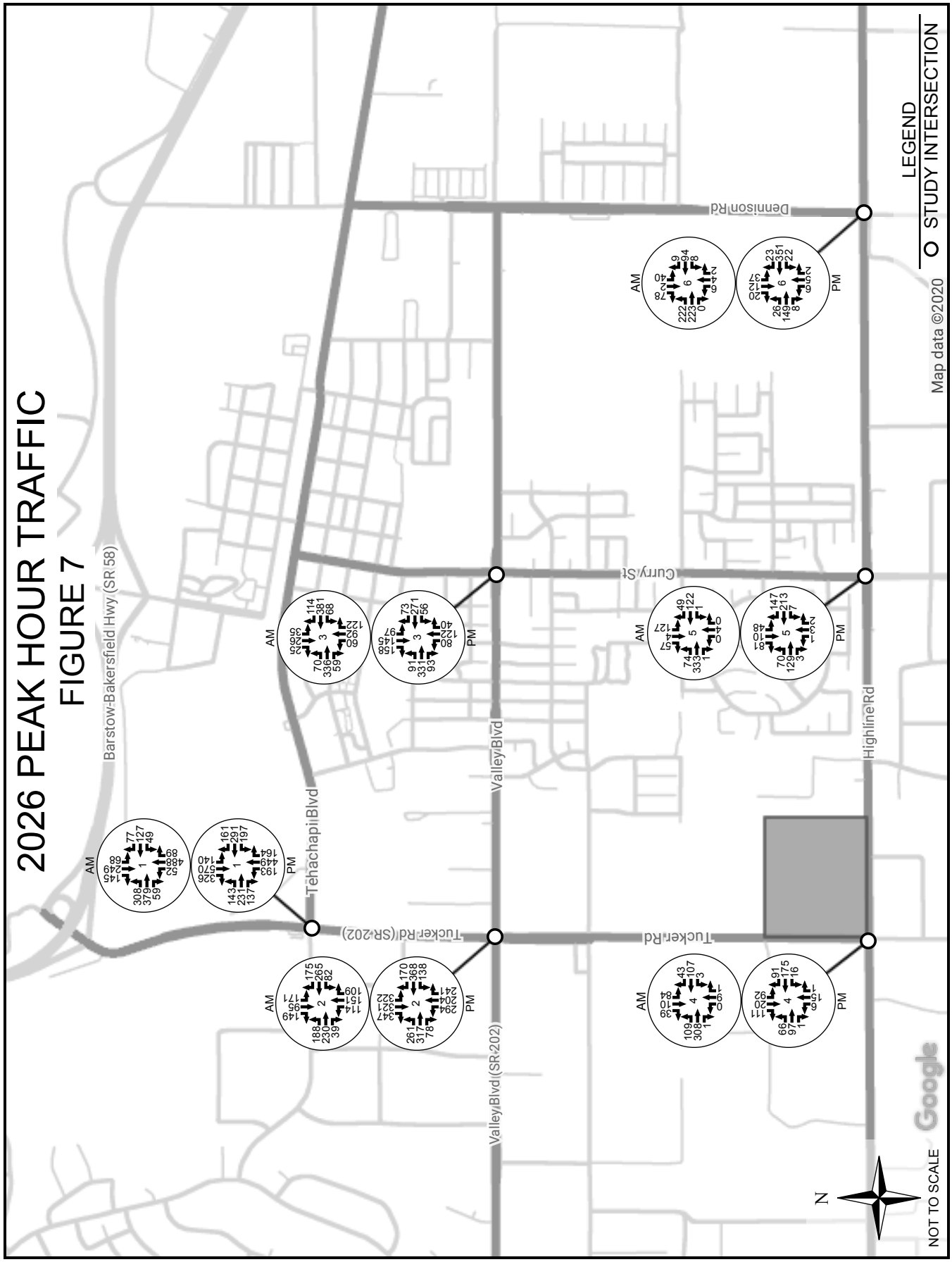
Existing peak hour turn movement volumes were field measured at the study intersections and are shown in Figure 5. Existing+Project peak hour volumes are shown in Figure 6. Due to the COVID-19 pandemic, data gathering was hindered due to reduced vehicle volume. Therefore, historical data from the precious Sage Ranch traffic study was utilized in this study and adjusted to account for recent developments in the City of Tehachapi, using limited recent counts. The Sage Ranch counts were taken in May 2019. Counts were taken for this project in February 2020 for the hours of 7:30 to 8:30 AM and 4:30 to 5:30 PM. Subsequent to the recent count, the peak hour was determined to be 7:00 to 8:00 AM and 4:15 to 5:15. The recent count data was used to determine growth rates from the older to newer counts and to adjust for the different peak hour. The Sage Ranch counts, and the recent count information is contained in the Appendix.

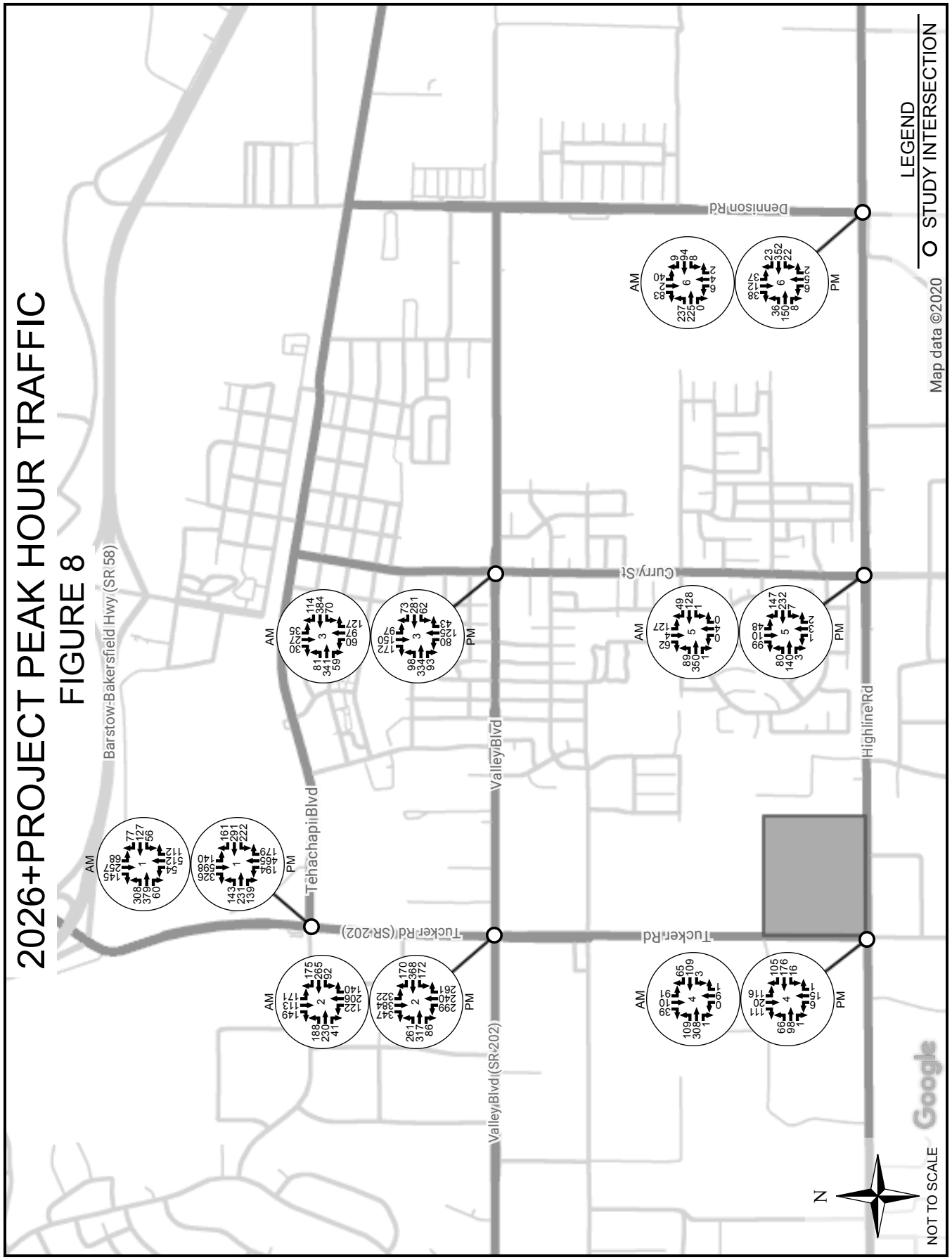
Annual growth rates from approximately 0.05% to 3.49% were applied to existing traffic volumes to estimate future traffic volumes for the year 2040. These growth rates were estimated based on a review of existing developments and KernCOG traffic model data. A list of cumulative (proposed) projects in the vicinity of the proposed single-family residential development was provided by the City of Tehachapi Planning Department (see Appendix). Based on the locations and tupes of projects provided in the cumulative list, resultant peak hour turning movement volumes were added to the 2026 and 2040 volumes to account for these cumulative impacts. The 2026 and 2040 cumulative traffic volumes are shown in Figures 7 through 10.

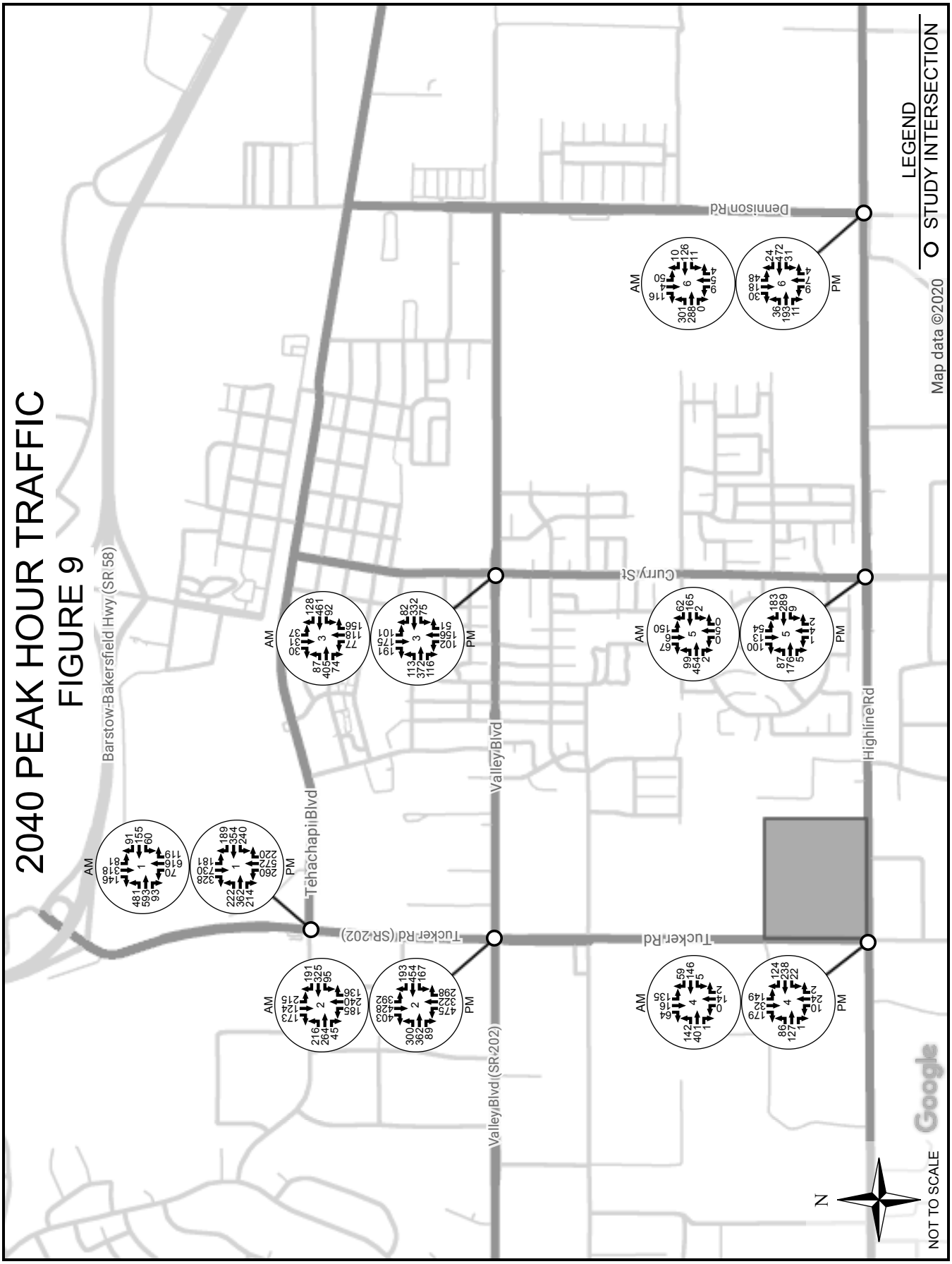

PROJECT PEAK HOUR TRAFFIC
FIGURE 4
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Tucker Rd
Curry St
Highline Rd
Dennison Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
N
NOT TO SCALE
AM
PM


2020 PEAK HOUR TRAFFIC
FIGURE 5
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Curry St
Tucker Rd
Highline Rd
Denniston Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
N
NOT TO SCALE
AM
PM


2020+PROJECT PEAK HOUR TRAFFIC
FIGURE 6
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Tucker Rd
Highline Rd
Curry St
Dennison Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
N
NOT TO SCALE
AM
PM


2026 PEAK HOUR TRAFFIC
FIGURE 7
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Curry St
Tucker Rd
Highline Rd
Dennison Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
NOT TO SCALE
N
AM
PM


2026+PROJECT PEAK HOUR TRAFFIC
FIGURE 8
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Tucker Rd
Curry St
Highline Rd
Dennison Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
N
NOT TO SCALE
AM
PM


2040 PEAK HOUR TRAFFIC
FIGURE 9
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Tucker Rd
Curry St
Highline Rd
Denniston Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
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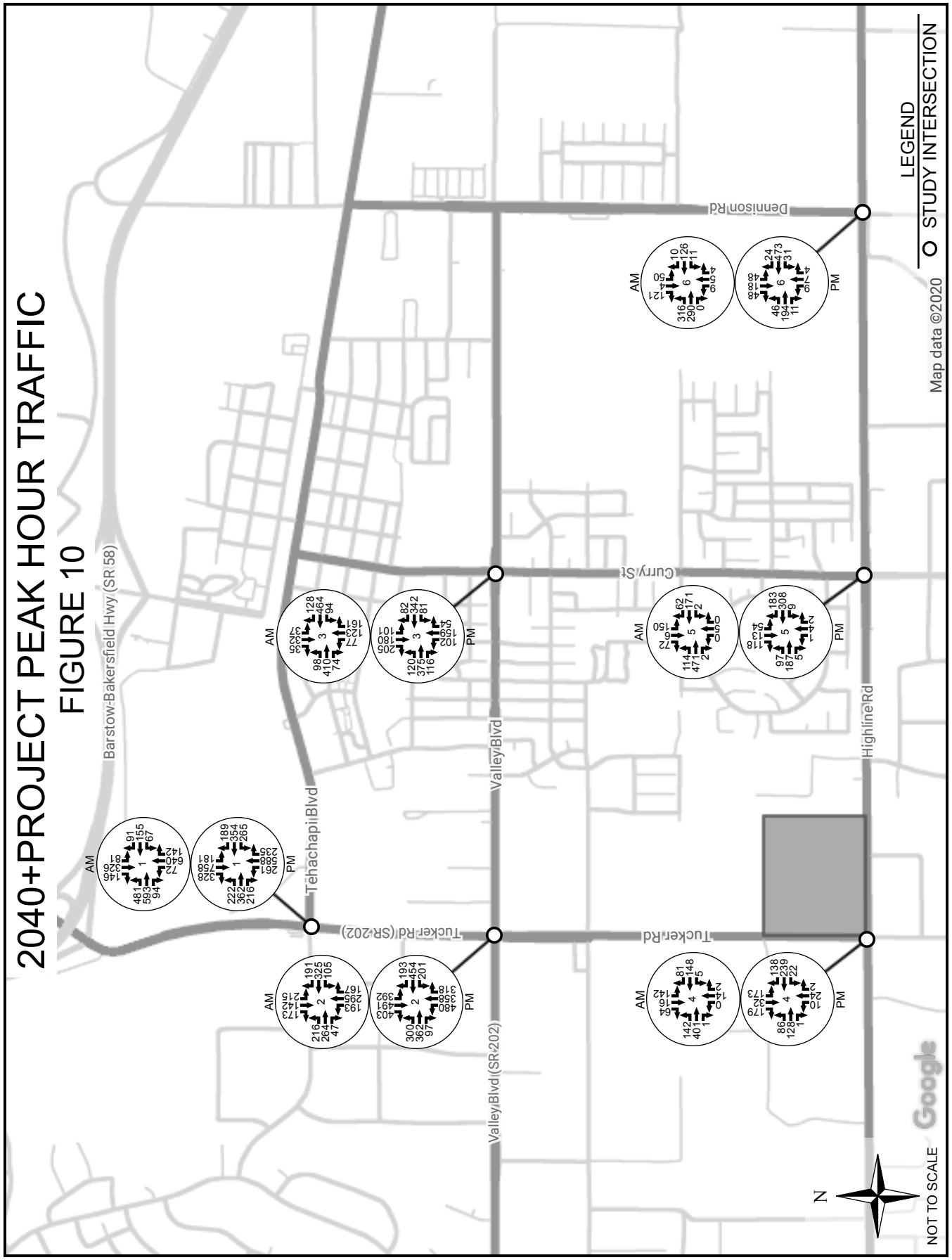
NOT TO SCALE
AM
PM


2040+PROJECT PEAK HOUR TRAFFIC
FIGURE 10
Barstow-Bakersfield Hwy (SR 58)
Tehachapi Blvd
Tucker Rd (SR 202)
Valley Blvd
Valley Blvd (SR 202)
Tucker Rd
Curry St
Highline Rd
Denniston Rd
LEGEND
STUDY INTERSECTION
Map data ©2020
Google
NOT TO SCALE
N
AM
PM

INTERSECTION ANALYSIS

A capacity analysis of the study intersections was conducted using Synchro 9 software from Trafficware. This software utilizes the 2010 capacity analysis methodology in the Transportation Research Board's Highway Capacity Manual. The analysis was performed for the following traffic scenarios:

- Existing (2020)
- Existing+Project (2020)
- Build Year (2026)
- Build+Project (2026)
- Future Cumulative (2040)
- Future Cumulative +Project (2040)

Criteria for intersection level of service (LOS) are shown in the tables below.

LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTION

Average Control Delay (sec/veh)	Level of Service	Expected Delay to Minor Street Traffic
≤ 10	A	Little or no delay
> 10 and ≤ 15	B	Short traffic delays
> 15 and ≤ 25	C	Average traffic delays
> 25 and ≤ 35	D	Long traffic delays
> 35 and ≤ 50	E	Very long traffic delays
> 50	F	Extreme delays

LEVEL OF SERVICE CRITERIA
SIGNALIZED INTERSECTIONS

Volume/Capacity	Control Delay (sec/veh)	Level of Service
< 0.60	≤ 10	A
0.61 - 0.70	> 10 and ≤ 20	B
0.71 - 0.80	> 20 and ≤ 35	C
0.81 - 0.90	> 35 and ≤ 55	D
0.91 - 1.00	> 55 and ≤ 80	E
> 1.0	> 80	F

Level of service for the study intersections is presented in Tables 3a and 3b. The intersection peak hour level of service goal for the City of Tehachapi is LOS C or better.

Table 3a
Intersection Level of Service
PM Peak Hour

#	Intersection	Control Type	2020	2020+ Project	2020+ Project w/Mitigation[1]
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	C	C	-
2	Tucker Rd & Valley Blvd	Signal	D (39.9)	D (43.9)	C
3	Curry St & Valley Blvd	Signal	B	B	-
4	Tucker Rd & Highline Rd	AWSC	A	B	B[2]
5	Curry St & Highline Rd	NB SB	B B	B B	B[2]
6	Dennison Ave & Highline Rd	NB SB	B B	B B	A[2]

[1]See mitigation measures in Tables 7a-7c
[2]Mitigation necessary due to AM Peak Hour LOS

Table 3a-Continued
Intersection Level of Service
PM Peak Hour

#	Intersection	Control Type	2026	2026+ Project	2026+ Project w/Mitigation
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	C	C	-
2	Tucker Rd & Valley Blvd	Signal	E (61.2)	E (77.6)	C
3	Curry St & Valley Blvd	Signal	B	B	-
4	Tucker Rd & Highline Rd	AWSC	B	B	B[2]
5	Curry St & Highline Rd	NB SB	B B	B B	B[2]
6	Dennison Ave & Highline Rd	NB SB	C C	C C	A[2]

[1]See mitigation measures in Tables 7a-7c
[2]Mitigation necessary due to PM Peak Hour LOS

Table 3a-Continued
Intersection Level of Service
PM Peak Hour

#	Intersection	Control Type	2040	2040+ Project	2040+ Project w/Mitigation[1]
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	D (50.4)	E (56.6)	C
2	Tucker Rd & Valley Blvd	Signal	F (131.2)	F (145.5)	C
3	Curry St & Valley Blvd	Signal	C	C	-
4	Tucker Rd & Highline Rd	AWSC	C	C	-
5	Curry St & Highline Rd	NB SB	C C	C C	B[2]
6	Dennison Ave & Highline Rd	NB SB	C D (26.1)	C D (27.1)	A[2]

[1]See mitigation measures in Tables 7a-7c
[2]Mitigation necessary due to PM Peak Hour LOS

Table 3b
Intersection Level of Service
AM Peak Hour

#	Intersection	Control Type	2020	2020+ Project	2020+ Project w/Mitigation[1]
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	B	C	-
2	Tucker Rd & Valley Blvd	Signal	C	C	C[2]
3	Curry St & Valley Blvd	Signal	B	C	-
4	Tucker Rd & Highline Rd	AWSC	D (33.6)	E (35.4)	C
5	Curry St & Highline Rd	NB SB	C D (29.1)	C E (36.9)	C
6	Dennison Ave & Highline Rd	NB SB	E (38.5) C	E (44.4) C	A

[1]See mitigation measures in Tables 7a-7c
[2]Mitigation necessary due to PM Peak Hour LOS

Table 3b-Continued
Intersection Level of Service
AM Peak Hour

#	Intersection	Control Type	2026	2026+ Project	2026+ Project w/Mitigation[1]
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	C	C	-
2	Tucker Rd & Valley Blvd	Signal	C	C	C[2]
3	Curry St & Valley Blvd	Signal	C	C	-
4	Tucker Rd & Highline Rd	AWSC	E (40.1)	E (39.7)	C
5	Curry St & Highline Rd	NB SB	C F (124.6)	D (27.5) F (182.8)	C
6	Dennison Ave & Highline Rd	NB SB	F (80.8) F (250.1)	F (99.9) F (>300)	C

[1]See mitigation measures in Tables 7a-7c
[2]Mitigation necessary due to PM Peak Hour LOS

Table 3b-Continued
Intersection Level of Service
AM Peak Hour

#	Intersection	Control Type	2040	2040+ Project	2040+ Project w/Mitigation[1]
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Signal	D (38.)	D (41.6)	C
2	Tucker Rd & Valley Blvd	Signal	D (44.1)	D (47.7)	C
3	Curry St & Valley Blvd	Signal	C	C	-
4	Tucker Rd & Highline Rd	AWSC	E (40.2)	E (40.5)	C
5	Curry St & Highline Rd	NB SB	E (40.7) F (>300)	E (47.5) F (>300)	C
6	Dennison Ave & Highline Rd	NB SB	F (>300) F (>300)	F (>300) F (>300)	B

[1]See mitigation measures in Tables 7a-7c

TRAFFIC SIGNAL WARRANT ANALYSIS

Peak hour signal warrants were evaluated for each of the unsignalized intersections within the study based on the California Manual on Uniform Traffic Control Devices (MUTCD). Peak hour signal warrants assess delay to traffic on the minor street approaches when entering or crossing a major street. Signal warrant analysis results for PM peak hours are shown in Table 4.

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 in order 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 LOS C, or operate below LOS C and not meet signal warrant criteria.

Table 4a
PM Traffic Signal Warrants

		2020			2026			2040		
#	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
4	Tucker Rd at Highline Rd	388	210	NO	440	258	NO	588	417	YES
5	Curry St at Highline Rd	446	73	NO	510	81	NO	691	104	NO
6	Dennison Ave at Highline Rd	418	41	NO	480	49	NO	666	72	NO

		2020+Project			2026+Project			2040+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
4	Tucker Rd at Highline Rd	404	234	NO	456	282	NO	604	441	YES
5	Curry St at Highline Rd	486	91	NO	550	99	NO	731	122	NO
6	Dennison Ave at Highline Rd	448	41	NO	510	49	NO	696	72	NO

Table 4b

AM Traffic Signal Warrants

		2020			2026			2040		
#	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
4	Tucker Rd at Highline Rd	319	66	NO	361	82	NO	477	131	NO
5	Curry St at Highline Rd	249	65	NO	283	72	NO	386	92	NO
6	Dennison Ave at Highline Rd	207	30	NO	236	36	NO	324	53	NO

		2020+Project			2026+Project			2040+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
4	Tucker Rd at Highline Rd	343	73	NO	385	89	NO	501	138	NO
5	Curry St at Highline Rd	287	70	NO	321	77	NO	424	97	NO
6	Dennison Ave at Highline Rd	230	30	NO	259	36	NO	347	53	NO

ROADWAY ANALYSIS

Published ADT information and future projected traffic, as shown in Table 5, were used to calculate the volume-to-capacity ratios shown in Table 6.

A volume-to-capacity ratio (v/c) of greater than 0.80 corresponds to a LOS of less than C, as defined in the Highway Capacity Manual. The City of Tehachapi's operational goal for roadway capacity is LOS C or better. Mitigation is required where project traffic reduces the LOS to below LOS C, or where the pre-existing condition of the roadway is below LOS C, and the LOS degrades below the pre-existing level of service with the addition of the project.

Table 5
Roadway ADT & Capacity

Street	Project ADT	2020[1]	2020+ Project	2026 ADT	2026+ Project	2040 ADT	2040+ Project	Existing Capacity	Mitigated Capacity	Mitigation
Valley Blvd: Tucker Rd to Curry St	533	11154	11687	12248	12781	15235	15768	15000	30000	Add 2 lanes
Highline Rd: Tucker Rd to Curry St	395	4654	5049	5313	5708	7237	7632	15000	-	
Highline Rd: Curry St to Dennison Rd	296	4652	4948	5301	5597	7191	7487	15000	-	
Tucker Rd: Valley Blvd to Tehachapi Blvd	977	15769	16746	17901	18878	24065	25042	40000	-	
Tucker Rd: Highline Rd to Valley Blvd	375	4818	5193	5918	6293	9563	9938	15000	-	
Curry St: Highline Rd to Valley Blvd	276	5810	6086	6457	6733	8260	8536	20000	-	

[1]Mitigation shown in Table 8

Table 6
Roadway Level of Service

Street	v/c 2020[1]	v/c 2020+Proj	v/c 2026	v/c 2026+Proj	v/c 2040	v/c 2040+Proj	v/c (Mit) 2040+Proj
Valley Blvd: Tucker Rd to Curry St	0.74	0.78	**0.82[1]**	**0.85[1]**	**1.02[1]**	**1.05[1]**	0.53
Highline Rd: Tucker Rd to Curry St	0.31	0.34	0.35	0.38	0.48	0.51	-
Highline Rd: Curry St to Dennison Rd	0.31	0.33	0.35	0.37	0.48	0.50	-
Tucker Rd: Valley Blvd to Tehachapi Blvd	0.39	0.42	0.45	0.47	0.60	0.63	-
Tucker Rd: Highline Rd to Valley Blvd	0.32	0.35	0.39	0.42	0.64	0.66	-
Curry St: Highline Rd to Valley Blvd	0.29	0.30	0.32	0.34	0.41	0.43	-

[1]Mitigation shown in Table 8

MITIGATION

The Tehachapi Region Transportation Impact Fee Program imposes fees on new development and includes a Region Transportation Impact Fee Program Facilities List. The Facilities List includes transportation improvements which are needed by the year 2040 to maintain a LOS C or better for new growth or to prevent the degradation of facilities which currently operate below LOS C.

Intersection mitigation needed by the years 2020, 2026, and 2040 to maintain or improve the operational level of service of the street system in the vicinity of the project is presented in Tables 7a-7c, respectively. Roadway mitigation needed by 2040 to maintain or improve the operational level of service of the street system is shown in Table 8.

Table 7a
2020 Intersection Improvements and Local Mitigation

#	Intersection	Total Improvements Required by 2020	Local Mitigation (Improvements not covered by RTIF or adjacent development)	Percent Share
2	Tucker Rd & Valley Blvd	Create a permitted overlap phase for southbound right	-[1]	-[2]
4	Tucker Rd & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 9.07%
5	Curry St & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 13.06%
6	Dennison Ave & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 6.96%

[1]The widening is covered in the Tehachapi Region Transportation Fee Program (RTIF)
[2]The project responsibility for contributing to this improvement is covered in the Tehachapi RTIF.
[3]Local mitigation is equal to the percent share of the estimated cost of the roundabout less the value of the signal as quantified in the Tehachapi RTIF.

The percent share shown in tables 7a through 7c for the cost of local mitigation were calculated according to the Caltrans fair share equation as follows:

$$\frac{\text{(Project Traffic)}}{\text{(2040 + Project Traffic) – (2020 Traffic)}} \times 100$$

Table 7b
2026 Intersection Improvements and Local Mitigation

#	Intersection	Total Improvements Required by 2026	Local Mitigation (Improvements not covered by RTIF or adjacent development)	Percent Share
2	Tucker Rd & Valley Blvd	Add southbound left Create a permitted overlap phase for southbound right	Add southbound left.	13.05%
4	Tucker Rd & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 9.07%
5	Curry St & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 13.06%
6	Dennison Ave & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 6.96%

[1]The widening is covered in the Tehachapi Region Transportation Fee Program (RTIF).
[2]The project responsibility for contributing to this improvement is covered in the Tehachapi RTIF.
[3]Local mitigation is equal to the percent share of the estimated cost of the roundabout less the value of the signal as quantified in the Tehachapi RTIF.

Table 7c
2040 Intersection Improvements and Local Mitigation

#	Intersection	Total Improvements Required by 2040	Local Mitigation (Improvements not covered by RTIF or adjacent development)	Percent Share
1	Tucker Rd & W Tehachapi Blvd/Red Apple Ave	Add eastbound left Create a permitted overlap phase for south-bound right and north-bound right	-[1]	-[2]
2	Tucker Rd & Valley Blvd[4]	Add southbound left Create a permitted overlap phase for southbound right Add westbound through. Add northbound left.	Add southbound left. Add northbound left.	13.05%
4	Tucker Rd & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 9.07%
5	Curry St & Highline Rd	Add Signal or Roundabout	Add Signal[1] or Add Roundabout[3]	Add Signal[2] or Add Roundabout = 13.06%
6	Dennison Ave & Highline Rd	Add Signal or Roundabout Add eastbound left	Add Signal[1] or Add Roundabout[3] Add eastbound left	Add Signal[2] or Add Roundabout = 6.96%

[1]The widening is covered in the Tehachapi Region Transportation Fee Program (RTIF).
[2]The project responsibility for contributing to this improvement is covered in the Tehachapi RTIF.
[3]Local mitigation is equal to the percent share of the estimated cost of the roundabout less the value of the signal as quantified in the Tehachapi RTIF
[4]The mitigated intersection configuration is as follows: 2-Eastbound Left, 1-Eastbound Through,1-Eastbound Through/Shared Right, 1-Westbound Left, 2-Westbound Through, 1-Westbound Right, 2-Northbound Left, 1-Northbound Through, 1-Northbound Through/Shared Right, 2-Southbound Left, 2-Southbound Through, 1-Southbound Right.

Table 8
Future Roadway Improvements and Local Mitigation

Intersection	Total Improvements Required by 2040	Local Mitigation (Improvements not covered by RTIF or adjacent development)	Percent Share
Valley Blvd: Tucker Rd to Curry St	Add two lanes	-[1]	-[2]

[1]The widening is covered in the Tehachapi Region Transportation Fee Program (RTIF).
[2]The project responsibility for contributing to this improvement is covered in the Tehachapi RTIF.

VEHICLE MILES TRAVELED (VMT)

An evaluation of vehicle miles traveled (VMT) for project traffic was conducted based on applicable California Environmental Quality Act (CEQA) guidelines. The analysis involved comparing an estimate of VMT attributable to the project to a baseline VMT for the greater Tehachapi area and assessing whether project VMT would result in a significant transportation impact.

Several factors were taken into consideration when estimating project VMT, including proposed land use, project trip type and distribution, and location of other similar land developments. Given the project's close proximity to the State Route 202, it is estimated that 60 percent of traffic generated by the project would be non-local trips. These trips are anticipated to use State Route 202 to travel to Bakersfield or Mojave. Local trips would comprise 40 percent of project traffic

As shown in Table 8, it is anticipated that the project will result in a weighted average VMT of 28.85 miles per vehicle per day. An average daily VMT of 39.35 miles was obtained from the Kern Council of Governments (KernCOG) for use in this study. This baseline (2017) average VMT was developed based on household and employment populations in the greater Tehachapi area as well as local and regional travel patterns.

Table 9

Project Vehicle Miles Traveled

Vehicle Trips	Local (40% of Trips)	Non-Local (60% of Trips)	
City	Tehachapi	Bakersfield	Mojave
Distance 1-Way	3.25	45	20.71
# of Vehicles	93	112	28
Total VMT	303	5,612	
Weighted Ave VMT/Trip	28.85		

The average project VMT of 28.85 miles per vehicle per day is less than the baseline average VMT of 39.35 miles. Therefore, the project is not expected to result in a significant transportation impact.

SUMMARY AND CONCLUSIONS

This study evaluated the potential traffic impact of a proposed 237 multi-family dwelling unit residential development located on the northeast corner of Tucker Road and Highline Road.

Level of Service Analysis

All intersections currently operate at an acceptable level of service and are anticipated to continue to do so with the addition of project traffic.

By the year 2026, it is anticipated that the intersection Tucker Road & Valley Boulevard will fall below an acceptable level of service prior to the addition of project traffic. With the addition of project traffic, Tucker Road & Highline Road is anticipated to fall below an acceptable level of service.

By 2040, it is anticipated that the intersection Tucker Road & Tehachapi Boulevard/Red Apple Avenue, Curry Street & Highline Road, and Dennison Avenue & Highline Road will fall below an acceptable level of service prior to the addition of project traffic. The remaining intersection will continue to operate an acceptable level of service through 2040.

Roadway Capacity

There are no significant impacts and therefore, no traffic mitigation measures are required.

Conclusion

Based on the City of Tehachapi's and Caltrans' standards for determining whether project traffic has a significant impact on intersections and roadways, the mitigation measures identified in Table 7 will be required in order to reduce the impacts for the listed facilities to less-than-significant levels in the year 2040.

REFERENCES

1. Annual Traffic Census, Kern COG
2. City of Tehachapi General Plan, May 2013
3. Highway Capacity Manual, Special Report 209, Transportation Research Board
4. California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014 Edition, Federal Highway Administration (FHA)
5. Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE)

APPENDIX

Intersection 1
Tucker Rd & W Tehachapi Blvd/Red Apple Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	191	113	181	267	121	170	315	144	99	385	323
Future Volume (veh/h)	115	191	113	181	267	121	170	315	144	99	385	323
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		0.97
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	210	124	199	293	133	187	346	158	109	423	355
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	367	281	493	447	343	253	1122	449	165	932	372
Arrive On Green	0.11	0.20	0.20	0.16	0.24	0.24	0.15	0.32	0.32	0.10	0.26	0.26
Sat Flow, veh/h	1634	1863	1427	3170	1863	1429	1634	3539	1415	1634	3539	1412
Grp Volume(v), veh/h	126	210	124	199	293	133	187	346	158	109	423	355
Grp Sat Flow(s),veh/h/ln	1634	1863	1427	1585	1863	1429	1634	1770	1415	1634	1770	1412
Q Serve(g_s), s	5.2	7.1	5.3	3.9	9.9	5.4	7.6	5.2	3.3	4.5	7.0	11.1
Cycle Q Clear(g_c), s	5.2	7.1	5.3	3.9	9.9	5.4	7.6	5.2	3.3	4.5	7.0	11.1
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	184	367	281	493	447	343	253	1122	449	165	932	372
V/C Ratio(X)	0.69	0.57	0.44	0.40	0.66	0.39	0.74	0.31	0.35	0.66	0.45	0.96
Avail Cap(c_a), veh/h	188	935	716	493	959	736	265	1538	615	230	1462	583
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	29.7	25.3	24.6	26.5	23.9	22.2	28.1	18.0	5.5	30.2	21.5	10.4
Incr Delay (d2), s/veh	9.7	1.4	1.1	0.5	1.6	0.7	10.0	0.2	0.5	4.5	0.3	20.0
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	2.8	3.8	2.2	1.8	5.2	2.2	4.1	2.5	2.1	2.2	3.5	7.0
LnGrp Delay(d),s/veh	39.4	26.8	25.7	27.0	25.5	22.9	38.1	18.2	6.0	34.6	21.8	30.4
LnGrp LOS	D	C	C	C	C	C	D	B	A	C	C	C
Approach Vol, veh/h		460			625			691			887	
Approach Delay, s/veh		29.9			25.5			20.8			26.8	
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	11.0	26.1	14.8	17.7	14.8	22.4	11.8	20.7
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	8.5	29.0	7.6	33.7	10.0	27.5	6.7	34.6
Max Q Clear Time (g_c+I1), s	6.5	7.2	5.9	9.1	9.6	13.1	7.2	11.9
Green Ext Time (p_c), s	0.0	2.7	0.5	1.2	0.1	2.9	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	191	115	206	267	121	171	331	159	99	413	323
Future Volume (veh/h)	115	191	115	206	267	121	171	331	159	99	413	323
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		0.97
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	210	126	226	293	133	188	364	175	109	454	355
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	366	281	492	446	342	254	1128	451	165	935	373
Arrive On Green	0.11	0.20	0.20	0.16	0.24	0.24	0.16	0.32	0.32	0.10	0.26	0.26
Sat Flow, veh/h	1634	1863	1427	3170	1863	1429	1634	3539	1415	1634	3539	1412
Grp Volume(v), veh/h	126	210	126	226	293	133	188	364	175	109	454	355
Grp Sat Flow(s),veh/h/ln	1634	1863	1427	1585	1863	1429	1634	1770	1415	1634	1770	1412
Q Serve(g_s), s	5.2	7.2	5.5	4.5	9.9	5.5	7.7	5.5	3.7	4.5	7.6	11.1
Cycle Q Clear(g_c), s	5.2	7.2	5.5	4.5	9.9	5.5	7.7	5.5	3.7	4.5	7.6	11.1
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	184	366	281	492	446	342	254	1128	451	165	935	373
V/C Ratio(X)	0.69	0.57	0.45	0.46	0.66	0.39	0.74	0.32	0.39	0.66	0.49	0.95
Avail Cap(c_a), veh/h	187	952	729	492	955	732	266	1521	608	233	1450	578
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	29.9	25.5	24.8	26.9	24.0	22.3	28.2	18.1	5.6	30.3	21.8	10.4
Incr Delay (d2), s/veh	9.8	1.4	1.1	0.7	1.6	0.7	10.0	0.2	0.5	4.5	0.4	19.7
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	2.8	3.8	2.2	2.0	5.3	2.2	4.2	2.7	2.3	2.2	3.8	7.0
LnGrp Delay(d),s/veh	39.7	26.9	25.9	27.6	25.7	23.1	38.3	18.3	6.2	34.8	22.1	30.2
LnGrp LOS	D	C	C	C	C	C	D	B	A	C	C	C
Approach Vol, veh/h		462			652			727			918	
Approach Delay, s/veh		30.1			25.8			20.5			26.7	
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	11.1	26.3	14.9	17.8	14.9	22.5	11.9	20.8
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	8.7	28.8	6.8	34.5	10.1	27.4	6.7	34.6
Max Q Clear Time (g_c+I1), s	6.5	7.5	6.5	9.2	9.7	13.1	7.2	11.9
Green Ext Time (p_c), s	0.1	2.8	0.1	1.2	0.2	3.0	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	191	115	206	267	121	171	331	159	99	413	323
Future Volume (veh/h)	115	191	115	206	267	121	171	331	159	99	413	323
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		0.97
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	1863	1863	1863	1863	1863	1716	1863	1863	1863	1716	1863	1863
Adj Flow Rate, veh/h	126	210	126	226	293	133	188	364	175	109	454	355
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	378	314	440	458	351	272	1114	686	171	941	542
Arrive On Green	0.09	0.20	0.20	0.13	0.25	0.25	0.15	0.31	0.31	0.10	0.27	0.27
Sat Flow, veh/h	3442	1863	1549	3442	1863	1430	1774	3539	1536	1634	3539	1533
Grp Volume(v), veh/h	126	210	126	226	293	133	188	364	175	109	454	355
Grp Sat Flow(s),veh/h/ln	1721	1863	1549	1721	1863	1430	1774	1770	1536	1634	1770	1533
Q Serve(g_s), s	2.2	6.5	2.7	3.9	9.0	3.2	6.4	5.0	1.2	4.1	6.9	3.8
Cycle Q Clear(g_c), s	2.2	6.5	2.7	3.9	9.0	3.2	6.4	5.0	1.2	4.1	6.9	3.8
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	293	378	314	440	458	351	272	1114	686	171	941	542
V/C Ratio(X)	0.43	0.56	0.40	0.51	0.64	0.38	0.69	0.33	0.26	0.64	0.48	0.65
Avail Cap(c_a), veh/h	452	1007	838	527	1048	804	521	1682	932	439	1593	825
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	27.8	22.9	8.0	26.0	21.6	8.3	25.7	16.7	2.9	27.5	19.8	5.0
Incr Delay (d2), s/veh	1.0	1.3	0.8	0.9	1.5	0.7	3.2	0.2	0.2	3.9	0.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.5	1.2	1.9	4.8	1.3	3.4	2.5	0.8	2.0	3.4	2.4
LnGrp Delay(d),s/veh	28.8	24.2	8.8	27.0	23.1	8.9	28.8	16.9	3.1	31.4	20.2	6.4
LnGrp LOS	C	C	A	C	C	A	C	B	A	C	C	A
Approach Vol, veh/h		462			652			727			918	
Approach Delay, s/veh		21.2			21.5			16.7			16.2	
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	10.7	24.1	12.2	17.0	13.8	21.0	9.4	19.7
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	15.9	29.1	8.5	33.3	17.5	27.5	7.1	34.7
Max Q Clear Time (g_c+I1), s	6.1	7.0	5.9	8.5	8.4	8.9	4.2	11.0
Green Ext Time (p_c), s	0.2	6.0	0.4	1.2	0.4	5.7	0.4	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	231	137	197	291	161	193	449	164	140	570	326
Future Volume (veh/h)	143	231	137	197	291	161	193	449	164	140	570	326
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		0.97
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	157	254	151	216	320	177	212	493	180	154	626	358
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	386	296	547	467	358	278	1064	425	208	912	363
Arrive On Green	0.13	0.21	0.21	0.17	0.25	0.25	0.17	0.30	0.30	0.13	0.26	0.26
Sat Flow, veh/h	1634	1863	1427	3170	1863	1430	1634	3539	1414	1634	3539	1411
Grp Volume(v), veh/h	157	254	151	216	320	177	212	493	180	154	626	358
Grp Sat Flow(s),veh/h/ln	1634	1863	1427	1585	1863	1430	1634	1770	1414	1634	1770	1411
Q Serve(g_s), s	7.7	10.4	7.8	5.0	12.9	8.8	10.3	9.4	4.9	7.6	13.3	13.7
Cycle Q Clear(g_c), s	7.7	10.4	7.8	5.0	12.9	8.8	10.3	9.4	4.9	7.6	13.3	13.7
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	211	386	296	547	467	358	278	1064	425	208	912	363
V/C Ratio(X)	0.74	0.66	0.51	0.40	0.69	0.49	0.76	0.46	0.42	0.74	0.69	0.98
Avail Cap(c_a), veh/h	226	770	590	586	857	658	298	1399	559	222	1233	492
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	34.9	30.3	29.2	30.6	28.2	26.7	32.9	23.7	7.6	35.0	27.9	13.2
Incr Delay (d2), s/veh	11.7	1.9	1.4	0.5	1.8	1.1	10.3	0.3	0.7	11.6	1.0	32.3
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	4.2	5.6	3.2	2.2	6.9	3.6	5.4	4.6	2.9	4.1	6.6	9.2
LnGrp Delay(d),s/veh	46.6	32.2	30.6	31.0	30.0	27.7	43.2	24.0	8.3	46.6	28.8	45.4
LnGrp LOS	D	C	C	C	C	C	D	C	A	D	C	D
Approach Vol, veh/h		562			713			885			1138	
Approach Delay, s/veh		35.8			29.8			25.4			36.5	
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	14.6	29.0	18.4	21.3	18.2	25.4	14.8	24.8
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	10.0	31.6	14.1	33.1	13.9	27.7	10.2	37.0
Max Q Clear Time (g_c+I1), s	9.6	11.4	7.0	12.4	12.3	15.7	9.7	14.9
Green Ext Time (p_c), s	0.0	3.5	1.7	1.4	0.7	3.5	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	231	139	222	291	161	194	465	179	140	598	326
Future Volume (veh/h)	143	231	139	222	291	161	194	465	179	140	598	326
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		0.97
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	157	254	153	244	320	177	213	511	197	154	657	358
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	386	296	552	467	359	270	1060	424	208	927	370
Arrive On Green	0.13	0.21	0.21	0.17	0.25	0.25	0.17	0.30	0.30	0.13	0.26	0.26
Sat Flow, veh/h	1634	1863	1427	3170	1863	1430	1634	3539	1414	1634	3539	1411
Grp Volume(v), veh/h	157	254	153	244	320	177	213	511	197	154	657	358
Grp Sat Flow(s),veh/h/ln	1634	1863	1427	1585	1863	1430	1634	1770	1414	1634	1770	1411
Q Serve(g_s), s	7.7	10.4	7.9	5.7	13.0	8.8	10.4	9.9	5.4	7.6	14.0	13.6
Cycle Q Clear(g_c), s	7.7	10.4	7.9	5.7	13.0	8.8	10.4	9.9	5.4	7.6	14.0	13.6
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	213	386	296	552	467	359	270	1060	424	208	927	370
V/C Ratio(X)	0.74	0.66	0.52	0.44	0.68	0.49	0.79	0.48	0.47	0.74	0.71	0.97
Avail Cap(c_a), veh/h	282	768	588	608	804	617	274	1370	547	221	1255	501
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	34.9	30.4	29.4	30.8	28.3	26.7	33.4	23.9	7.7	35.1	27.9	12.9
Incr Delay (d2), s/veh	6.8	1.9	1.4	0.6	1.8	1.1	14.2	0.3	0.8	11.7	1.2	27.9
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	3.9	5.6	3.2	2.6	6.9	3.6	5.7	4.9	3.2	4.1	7.0	8.9
LnGrp Delay(d),s/veh	41.7	32.3	30.8	31.4	30.1	27.8	47.6	24.3	8.5	46.8	29.1	40.9
LnGrp LOS	D	C	C	C	C	C	D	C	A	D	C	D
Approach Vol, veh/h		564			741			921			1169	
Approach Delay, s/veh		34.5			30.0			26.3			35.0	
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	14.6	29.0	18.5	21.3	17.8	25.9	14.9	24.9
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	10.0	31.0	14.7	33.1	12.7	28.3	13.1	34.7
Max Q Clear Time (g_c+I1), s	9.6	11.9	7.7	12.4	12.4	16.0	9.7	15.0
Green Ext Time (p_c), s	0.0	3.6	1.8	1.4	0.1	3.6	0.1	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	231	139	222	291	161	194	465	179	140	598	326
Future Volume (veh/h)	143	231	139	222	291	161	194	465	179	140	598	326
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		0.97
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	1863	1863	1863	1863	1863	1716	1863	1863	1863	1716	1863	1863
Adj Flow Rate, veh/h	157	254	153	244	320	177	213	511	197	154	657	358
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	396	330	422	461	354	285	1148	692	216	1046	593
Arrive On Green	0.09	0.21	0.21	0.12	0.25	0.25	0.16	0.32	0.32	0.13	0.30	0.30
Sat Flow, veh/h	3442	1863	1550	3442	1863	1430	1774	3539	1536	1634	3539	1535
Grp Volume(v), veh/h	157	254	153	244	320	177	213	511	197	154	657	358
Grp Sat Flow(s),veh/h/ln	1721	1863	1550	1721	1863	1430	1774	1770	1536	1634	1770	1535
Q Serve(g_s), s	3.3	9.5	4.1	5.1	12.0	5.2	8.8	8.8	1.9	6.9	12.3	4.6
Cycle Q Clear(g_c), s	3.3	9.5	4.1	5.1	12.0	5.2	8.8	8.8	1.9	6.9	12.3	4.6
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	303	396	330	422	461	354	285	1148	692	216	1046	593
V/C Ratio(X)	0.52	0.64	0.46	0.58	0.69	0.50	0.75	0.45	0.28	0.71	0.63	0.60
Avail Cap(c_a), veh/h	377	839	699	439	873	670	434	1401	802	366	1327	715
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	27.6	10.2	31.8	26.3	10.2	30.7	20.5	3.9	31.9	23.4	5.9
Incr Delay (d2), s/veh	1.4	1.7	1.0	1.8	1.9	1.1	3.9	0.3	0.2	4.4	0.6	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	1.6	5.1	2.6	2.5	6.4	2.9	4.6	4.3	1.2	3.4	6.1	2.8
LnGrp Delay(d),s/veh	34.8	29.3	11.2	33.6	28.2	11.3	34.6	20.8	4.1	36.3	24.0	6.9
LnGrp LOS	C	C	B	C	C	B	C	C	A	D	C	A
Approach Vol, veh/h		564			741			921			1169	
Approach Delay, s/veh		25.9			25.9			20.4			20.4	
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	14.1	28.9	13.4	20.3	16.3	26.7	10.8	23.0
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	15.9	29.1	8.5	33.3	17.5	27.5	7.1	34.7
Max Q Clear Time (g_c+I1), s	8.9	10.8	7.1	11.5	10.8	14.3	5.3	14.0
Green Ext Time (p_c), s	0.2	7.5	0.3	1.4	0.4	6.4	0.3	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	362	214	240	354	189	260	572	220	181	730	328
Future Volume (veh/h)	222	362	214	240	354	189	260	572	220	181	730	328
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		0.97
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	244	398	235	264	389	208	286	629	242	199	802	360
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	475	365	517	482	370	304	1032	412	242	898	358
Arrive On Green	0.16	0.26	0.26	0.16	0.26	0.26	0.19	0.29	0.29	0.15	0.25	0.25
Sat Flow, veh/h	1634	1863	1430	3170	1863	1430	1634	3539	1413	1634	3539	1411
Grp Volume(v), veh/h	244	398	235	264	389	208	286	629	242	199	802	360
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1585	1863	1430	1634	1770	1413	1634	1770	1411
Q Serve(g_s), s	16.6	22.8	16.5	8.6	22.1	14.2	19.5	17.3	10.5	13.3	24.7	18.9
Cycle Q Clear(g_c), s	16.6	22.8	16.5	8.6	22.1	14.2	19.5	17.3	10.5	13.3	24.7	18.9
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	261	475	365	517	482	370	304	1032	412	242	898	358
V/C Ratio(X)	0.94	0.84	0.64	0.51	0.81	0.56	0.94	0.61	0.59	0.82	0.89	1.01
Avail Cap(c_a), veh/h	261	571	439	542	593	455	304	1032	412	275	913	364
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	46.8	39.8	37.5	43.1	39.2	36.3	45.3	34.4	13.9	46.6	40.6	18.4
Incr Delay (d2), s/veh	38.7	9.1	2.4	0.8	6.7	1.3	36.1	1.0	2.2	16.1	11.0	48.5
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	10.3	12.9	6.8	3.8	12.2	5.8	11.9	8.6	5.6	7.1	13.4	13.1
LnGrp Delay(d),s/veh	85.6	48.9	39.9	43.9	45.9	37.6	81.4	35.5	16.0	62.6	51.6	66.9
LnGrp LOS	F	D	D	D	D	D	F	D	B	E	D	F
Approach Vol, veh/h		877			861			1157			1361	
Approach Delay, s/veh		56.7			43.3			42.8			57.3	
Approach LOS		E			D			D			E	

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	20.7	36.9	22.4	32.8	25.0	32.6	22.0	33.2
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	17.7	29.8	18.0	33.3	19.7	27.8	16.7	34.6
Max Q Clear Time (g_c+I1), s	15.3	19.3	10.6	24.8	21.5	26.7	18.6	24.1
Green Ext Time (p_c), s	0.1	3.7	2.2	1.7	0.0	0.7	0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	50.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	362	216	265	354	189	261	588	235	181	758	328
Future Volume (veh/h)	222	362	216	265	354	189	261	588	235	181	758	328
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		0.97
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	244	398	237	291	389	208	287	646	258	199	833	360
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	472	362	287	469	360	285	1050	419	221	911	363
Arrive On Green	0.18	0.25	0.25	0.18	0.25	0.25	0.17	0.30	0.30	0.14	0.26	0.26
Sat Flow, veh/h	1634	1863	1430	1634	1863	1430	1634	3539	1414	1634	3539	1411
Grp Volume(v), veh/h	244	398	237	291	389	208	287	646	258	199	833	360
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1430	1634	1770	1414	1634	1770	1411
Q Serve(g_s), s	16.6	23.3	17.0	20.1	22.6	10.2	20.0	18.0	18.0	13.7	26.2	18.6
Cycle Q Clear(g_c), s	16.6	23.3	17.0	20.1	22.6	10.2	20.0	18.0	18.0	13.7	26.2	18.6
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	289	472	362	287	469	360	285	1050	419	221	911	363
V/C Ratio(X)	0.85	0.84	0.65	1.02	0.83	0.58	1.01	0.62	0.62	0.90	0.91	0.99
Avail Cap(c_a), veh/h	289	559	429	287	587	450	285	1050	419	221	911	363
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	45.7	40.6	38.3	47.3	40.5	18.2	47.3	34.7	34.7	48.8	41.3	17.3
Incr Delay (d2), s/veh	20.1	9.9	2.8	57.2	7.9	1.5	55.0	1.1	2.7	35.0	13.5	44.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	13.2	7.0	13.5	12.7	5.1	13.3	9.0	7.3	8.3	14.6	12.9
LnGrp Delay(d),s/veh	65.7	50.6	41.1	104.6	48.5	19.6	102.3	35.8	37.4	83.8	54.9	62.0
LnGrp LOS	E	D	D	F	D	B	F	D	D	F	D	E
Approach Vol, veh/h		879			888			1191			1392	
Approach Delay, s/veh		52.2			60.1			52.2			60.9	
Approach LOS		D			E			D			E	

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	19.5	38.0	24.1	33.0	24.0	33.5	24.2	32.9
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	14.2	32.7	18.8	33.1	18.7	28.2	17.1	34.8
Max Q Clear Time (g_c+I1), s	15.7	20.0	22.1	25.3	22.0	28.2	18.6	24.6
Green Ext Time (p_c), s	0.0	7.5	0.0	1.6	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	56.6
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	362	216	265	354	189	261	588	235	181	758	328
Future Volume (veh/h)	222	362	216	265	354	189	261	588	235	181	758	328
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		0.97
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	1863	1863	1863	1863	1863	1716	1863	1863	1863	1716	1863	1863
Adj Flow Rate, veh/h	244	398	237	291	389	208	287	646	258	199	833	360
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	496	413	345	491	377	337	1126	647	249	992	593
Arrive On Green	0.10	0.27	0.27	0.10	0.26	0.26	0.19	0.32	0.32	0.15	0.28	0.28
Sat Flow, veh/h	3442	1863	1553	3442	1863	1430	1774	3539	1536	1634	3539	1534
Grp Volume(v), veh/h	244	398	237	291	389	208	287	646	258	199	833	360
Grp Sat Flow(s),veh/h/ln	1721	1863	1553	1721	1863	1430	1774	1770	1536	1634	1770	1534
Q Serve(g_s), s	6.7	19.5	7.7	8.1	19.0	7.9	15.3	14.9	3.6	11.5	21.7	6.5
Cycle Q Clear(g_c), s	6.7	19.5	7.7	8.1	19.0	7.9	15.3	14.9	3.6	11.5	21.7	6.5
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	354	496	413	345	491	377	337	1126	647	249	992	593
V/C Ratio(X)	0.69	0.80	0.57	0.84	0.79	0.55	0.85	0.57	0.40	0.80	0.84	0.61
Avail Cap(c_a), veh/h	354	658	549	345	685	526	341	1126	647	287	1041	614
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	42.4	33.5	11.0	43.3	33.6	13.0	38.3	27.8	6.9	40.1	33.2	8.4
Incr Delay (d2), s/veh	5.6	5.3	1.3	17.2	4.3	1.3	18.0	0.7	0.4	13.1	6.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	10.8	3.4	4.7	10.3	3.2	9.2	7.4	2.4	6.1	11.4	3.9
LnGrp Delay(d),s/veh	48.0	38.8	12.2	60.5	37.9	14.3	56.3	28.5	7.3	53.2	39.2	10.0
LnGrp LOS	D	D	B	E	D	B	E	C	A	D	D	B
Approach Vol, veh/h		879			888			1191			1392	
Approach Delay, s/veh		34.2			39.8			30.6			33.7	
Approach LOS		C			D			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	18.9	35.2	13.8	30.0	22.6	31.4	14.1	29.8
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	15.9	29.1	8.5	33.3	17.5	27.5	7.1	34.7
Max Q Clear Time (g_c+I1), s	13.5	16.9	10.1	21.5	17.3	23.7	8.7	21.0
Green Ext Time (p_c), s	0.1	7.3	0.0	2.0	0.0	2.3	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	313	49	45	117	57	46	329	78	32	167	145
Future Volume (veh/h)	253	313	49	45	117	57	46	329	78	32	167	145
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		0.97
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	294	364	57	52	136	66	53	383	91	37	194	169
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	680	523	198	323	247	103	835	333	88	804	320
Arrive On Green	0.25	0.37	0.37	0.06	0.17	0.17	0.06	0.24	0.24	0.05	0.23	0.23
Sat Flow, veh/h	1634	1863	1433	3170	1863	1425	1634	3539	1409	1634	3539	1409
Grp Volume(v), veh/h	294	364	57	52	136	66	53	383	91	37	194	169
Grp Sat Flow(s),veh/h/ln	1634	1863	1433	1585	1863	1425	1634	1770	1409	1634	1770	1409
Q Serve(g_s), s	9.3	8.7	1.5	0.9	3.7	1.6	1.8	5.3	3.0	1.2	2.5	2.6
Cycle Q Clear(g_c), s	9.3	8.7	1.5	0.9	3.7	1.6	1.8	5.3	3.0	1.2	2.5	2.6
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	415	680	523	198	323	247	103	835	333	88	804	320
V/C Ratio(X)	0.71	0.54	0.11	0.26	0.42	0.27	0.52	0.46	0.27	0.42	0.24	0.53
Avail Cap(c_a), veh/h	634	1647	1267	436	1180	903	179	1911	761	159	1868	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)	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	14.2	11.9	25.3	20.9	10.2	25.7	18.5	17.7	25.9	17.9	3.5
Incr Delay (d2), s/veh	2.2	0.7	0.1	0.7	0.9	0.6	4.0	0.4	0.4	3.1	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.6	0.6	0.4	2.0	0.9	0.9	2.6	1.2	0.6	1.3	2.1
LnGrp Delay(d),s/veh	21.5	14.8	12.0	26.0	21.7	10.7	29.7	18.9	18.1	29.1	18.1	4.9
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	A
Approach Vol, veh/h		715			254			527			400	
Approach Delay, s/veh		17.3			19.8			19.9			13.5	
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	7.1	17.4	7.5	24.7	7.6	16.9	18.4	13.8
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.2	29.3	6.5	48.8	4.9	28.6	20.7	34.6
Max Q Clear Time (g_c+I1), s	3.2	7.3	2.9	10.7	3.8	4.6	11.3	5.7
Green Ext Time (p_c), s	0.0	3.4	0.0	2.7	0.0	3.5	1.9	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	313	50	52	117	57	48	353	101	32	175	145
Future Volume (veh/h)	253	313	50	52	117	57	48	353	101	32	175	145
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	1716
Adj Flow Rate, veh/h	294	364	58	60	136	66	56	410	117	37	203	169
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	547	420	135	253	193	89	1696	680	64	1643	659
Arrive On Green	0.20	0.29	0.29	0.04	0.14	0.14	0.05	0.48	0.48	0.04	0.46	0.46
Sat Flow, veh/h	1634	1863	1431	3170	1863	1420	1634	3539	1419	1634	3539	1419
Grp Volume(v), veh/h	294	364	58	60	136	66	56	410	117	37	203	169
Grp Sat Flow(s),veh/h/ln	1634	1863	1431	1585	1863	1420	1634	1770	1419	1634	1770	1419
Q Serve(g_s), s	19.3	18.9	3.3	2.0	7.5	3.9	3.7	7.5	5.1	2.4	3.6	3.6
Cycle Q Clear(g_c), s	19.3	18.9	3.3	2.0	7.5	3.9	3.7	7.5	5.1	2.4	3.6	3.6
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	327	547	420	135	253	193	89	1696	680	64	1643	659
V/C Ratio(X)	0.90	0.67	0.14	0.44	0.54	0.34	0.63	0.24	0.17	0.58	0.12	0.26
Avail Cap(c_a), veh/h	327	886	681	161	608	464	98	1696	680	82	1643	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	42.9	34.1	28.6	51.4	44.3	30.6	50.9	16.9	16.3	51.9	16.7	3.6
Incr Delay (d2), s/veh	26.3	1.4	0.1	2.3	1.8	1.0	10.7	0.3	0.5	8.0	0.2	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	11.1	9.9	1.3	0.9	4.0	1.6	1.9	3.7	2.1	1.3	1.8	1.5
LnGrp Delay(d),s/veh	69.2	35.5	28.8	53.7	46.0	31.6	61.7	17.2	16.8	59.9	16.9	4.5
LnGrp LOS	E	D	C	D	D	C	E	B	B	E	B	A
Approach Vol, veh/h		716			262			583			409	
Approach Delay, s/veh		48.8			44.2			21.4			15.7	
Approach LOS		D			D			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	8.3	56.7	8.7	36.3	10.0	55.1	26.0	19.0
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.2	29.3	4.3	51.0	5.3	28.2	20.7	34.6
Max Q Clear Time (g_c+I1), s	4.4	9.5	4.0	20.9	5.7	5.6	21.3	9.5
Green Ext Time (p_c), s	0.0	3.6	0.0	2.7	0.0	3.7	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	313	50	52	117	57	48	353	101	32	175	145
Future Volume (veh/h)	253	313	50	52	117	57	48	353	101	32	175	145
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		0.97
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	294	364	58	60	136	66	56	410	117	37	203	169
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	636	579	445	220	335	256	110	910	464	93	872	640
Arrive On Green	0.20	0.31	0.31	0.07	0.18	0.18	0.07	0.26	0.26	0.06	0.25	0.25
Sat Flow, veh/h	3170	1863	1432	3170	1863	1425	1634	3539	1411	1634	3539	1410
Grp Volume(v), veh/h	294	364	58	60	136	66	56	410	117	37	203	169
Grp Sat Flow(s),veh/h/ln	1585	1863	1432	1585	1863	1425	1634	1770	1411	1634	1770	1410
Q Serve(g_s), s	4.3	8.8	1.5	0.9	3.4	1.4	1.7	5.1	3.2	1.1	2.4	0.8
Cycle Q Clear(g_c), s	4.3	8.8	1.5	0.9	3.4	1.4	1.7	5.1	3.2	1.1	2.4	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	636	579	445	220	335	256	110	910	464	93	872	640
V/C Ratio(X)	0.46	0.63	0.13	0.27	0.41	0.26	0.51	0.45	0.25	0.40	0.23	0.26
Avail Cap(c_a), veh/h	909	1372	1054	752	1279	979	738	2207	981	641	1997	1088
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	18.4	15.4	12.9	23.1	19.0	8.6	23.5	16.3	12.9	23.8	15.8	2.0
Incr Delay (d2), s/veh	0.5	1.1	0.1	0.7	0.8	0.5	3.6	0.4	0.3	2.8	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.6	0.6	0.4	1.8	0.8	0.9	2.5	1.3	0.6	1.2	0.7
LnGrp Delay(d),s/veh	18.9	16.6	13.1	23.7	19.8	9.2	27.1	16.7	13.2	26.6	15.9	2.2
LnGrp LOS	B	B	B	C	B	A	C	B	B	C	B	A
Approach Vol, veh/h		716			262			583			409	
Approach Delay, s/veh		17.3			18.0			17.0			11.2	
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	7.0	17.4	7.6	20.3	7.5	16.9	14.5	13.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.2	31.3	11.1	37.2	22.3	28.2	13.7	34.6
Max Q Clear Time (g_c+I1), s	3.1	7.1	2.9	10.8	3.7	4.4	6.3	5.4
Green Ext Time (p_c), s	0.1	3.8	0.1	2.8	0.1	3.8	1.8	0.7

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)	308	379	59	49	127	77	52	488	89	68	249	145
Future Volume (veh/h)	308	379	59	49	127	77	52	488	89	68	249	145
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		0.96
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	358	441	69	57	148	90	60	567	103	79	290	169
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	580	446	388	316	241	251	885	353	128	618	245
Arrive On Green	0.26	0.31	0.31	0.12	0.17	0.17	0.15	0.25	0.25	0.08	0.17	0.17
Sat Flow, veh/h	1634	1863	1432	3170	1863	1424	1634	3539	1411	1634	3539	1403
Grp Volume(v), veh/h	358	441	69	57	148	90	60	567	103	79	290	169
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1585	1863	1424	1634	1770	1411	1634	1770	1403
Q Serve(g_s), s	13.9	14.4	2.3	1.1	4.8	3.8	2.2	9.6	2.5	3.1	5.0	3.7
Cycle Q Clear(g_c), s	13.9	14.4	2.3	1.1	4.8	3.8	2.2	9.6	2.5	3.1	5.0	3.7
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	431	580	446	388	316	241	251	885	353	128	618	245
V/C Ratio(X)	0.83	0.76	0.15	0.15	0.47	0.37	0.24	0.64	0.29	0.62	0.47	0.69
Avail Cap(c_a), veh/h	535	1452	1116	388	995	761	251	1611	642	134	1605	636
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	20.9	16.8	26.4	25.2	24.8	25.0	22.5	8.0	30.0	24.9	6.2
Incr Delay (d2), s/veh	8.8	2.1	0.2	0.2	1.1	1.0	0.5	0.8	0.5	7.8	0.6	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	7.3	7.7	0.9	0.5	2.6	1.5	1.0	4.7	1.4	1.7	2.5	2.8
LnGrp Delay(d),s/veh	32.1	23.0	16.9	26.5	26.3	25.7	25.5	23.3	8.5	37.8	25.5	9.7
LnGrp LOS	C	C	B	C	C	C	C	C	A	D	C	A
Approach Vol, veh/h		868			295			730			538	
Approach Delay, s/veh		26.3			26.2			21.4			22.3	
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	9.3	20.8	12.2	24.9	14.3	15.7	21.8	15.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.2	29.3	4.2	51.1	4.3	29.2	20.7	34.6
Max Q Clear Time (g_c+I1), s	5.1	11.6	3.1	16.4	4.2	7.0	15.9	6.8
Green Ext Time (p_c), s	0.0	2.6	0.1	1.9	0.1	1.8	0.6	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	379	60	56	127	77	54	512	112	68	257	145
Future Volume (veh/h)	308	379	60	56	127	77	54	512	112	68	257	145
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		0.96
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	358	441	70	65	148	90	63	595	130	79	299	169
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	732	563	184	349	267	258	891	355	126	605	240
Arrive On Green	0.26	0.39	0.39	0.06	0.19	0.19	0.16	0.25	0.25	0.08	0.17	0.17
Sat Flow, veh/h	1634	1863	1434	3170	1863	1426	1634	3539	1411	1634	3539	1402
Grp Volume(v), veh/h	358	441	70	65	148	90	63	595	130	79	299	169
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1585	1863	1426	1634	1770	1411	1634	1770	1402
Q Serve(g_s), s	15.0	13.7	1.1	1.4	5.1	4.0	2.5	11.0	5.5	3.4	5.6	4.2
Cycle Q Clear(g_c), s	15.0	13.7	1.1	1.4	5.1	4.0	2.5	11.0	5.5	3.4	5.6	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	430	732	563	184	349	267	258	891	355	126	605	240
V/C Ratio(X)	0.83	0.60	0.12	0.35	0.42	0.34	0.24	0.67	0.37	0.63	0.49	0.70
Avail Cap(c_a), veh/h	592	1444	1111	257	920	705	258	1471	586	148	1437	569
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	17.6	3.5	32.9	26.1	25.6	26.8	24.4	22.4	32.5	27.3	7.3
Incr Delay (d2), s/veh	7.2	0.8	0.1	1.1	0.8	0.7	0.5	0.9	0.6	6.1	0.6	3.8
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	7.6	7.1	0.9	0.7	2.7	1.6	1.1	5.5	2.2	1.8	2.8	3.0
LnGrp Delay(d),s/veh	32.4	18.4	3.6	34.0	26.9	26.3	27.3	25.3	23.0	38.7	27.9	11.0
LnGrp LOS	C	B	A	C	C	C	C	C	C	D	C	B
Approach Vol, veh/h		869			303			788			547	
Approach Delay, s/veh		23.0			28.2			25.1			24.2	
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	9.6	22.3	8.2	32.5	15.5	16.4	23.1	17.6
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	5.3	28.9	4.6	55.0	6.0	28.2	25.0	34.6
Max Q Clear Time (g_c+I1), s	5.4	13.0	3.4	15.7	4.5	7.6	17.0	7.1
Green Ext Time (p_c), s	0.0	2.7	0.0	2.9	0.6	1.8	0.8	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	379	60	56	127	77	54	512	112	68	257	145
Future Volume (veh/h)	308	379	60	56	127	77	54	512	112	68	257	145
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		0.97
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	358	441	70	65	148	90	63	595	130	79	299	169
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	698	612	471	196	317	243	110	1015	495	131	1061	745
Arrive On Green	0.22	0.33	0.33	0.06	0.17	0.17	0.07	0.29	0.29	0.08	0.30	0.30
Sat Flow, veh/h	3170	1863	1432	3170	1863	1425	1634	3539	1413	1634	3539	1414
Grp Volume(v), veh/h	358	441	70	65	148	90	63	595	130	79	299	169
Grp Sat Flow(s),veh/h/ln	1585	1863	1432	1585	1863	1425	1634	1770	1413	1634	1770	1414
Q Serve(g_s), s	6.6	13.7	2.3	1.3	4.7	2.6	2.5	9.5	4.4	3.1	4.3	1.0
Cycle Q Clear(g_c), s	6.6	13.7	2.3	1.3	4.7	2.6	2.5	9.5	4.4	3.1	4.3	1.0
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	698	612	471	196	317	243	110	1015	495	131	1061	745
V/C Ratio(X)	0.51	0.72	0.15	0.33	0.47	0.37	0.57	0.59	0.26	0.60	0.28	0.23
Avail Cap(c_a), veh/h	720	1086	835	595	1013	774	584	1747	788	507	1581	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	19.5	15.6	29.7	24.7	12.2	29.9	20.2	15.4	29.3	17.7	2.1
Incr Delay (d2), s/veh	0.6	1.6	0.1	1.0	1.1	0.9	4.6	0.5	0.3	4.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	7.3	0.9	0.6	2.5	1.1	1.3	4.7	1.7	1.5	2.1	0.7
LnGrp Delay(d),s/veh	23.2	21.1	15.8	30.6	25.8	13.2	34.5	20.7	15.7	33.7	17.8	2.3
LnGrp LOS	C	C	B	C	C	B	C	C	B	C	B	A
Approach Vol, veh/h		869			303			788			547	
Approach Delay, s/veh		21.5			23.1			21.0			15.3	
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	9.3	22.9	8.1	25.7	8.4	23.8	18.5	15.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.2	31.3	11.1	37.2	22.3	28.2	13.7	34.6
Max Q Clear Time (g_c+I1), s	5.1	11.5	3.3	15.7	4.5	6.3	8.6	6.7
Green Ext Time (p_c), s	0.2	5.0	0.1	3.4	0.1	5.2	1.7	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	481	593	93	60	155	91	70	616	119	81	318	146
Future Volume (veh/h)	481	593	93	60	155	91	70	616	119	81	318	146
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		0.97
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	559	690	108	70	180	106	81	716	138	94	370	170
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	547	840	647	159	310	237	111	927	370	106	915	365
Arrive On Green	0.33	0.45	0.45	0.05	0.17	0.17	0.07	0.26	0.26	0.06	0.26	0.26
Sat Flow, veh/h	1634	1863	1435	3170	1863	1424	1634	3539	1411	1634	3539	1411
Grp Volume(v), veh/h	559	690	108	70	180	106	81	716	138	94	370	170
Grp Sat Flow(s),veh/h/ln	1634	1863	1435	1585	1863	1424	1634	1770	1411	1634	1770	1411
Q Serve(g_s), s	31.0	30.0	4.1	2.0	8.3	6.2	4.5	17.3	5.8	5.3	8.0	3.7
Cycle Q Clear(g_c), s	31.0	30.0	4.1	2.0	8.3	6.2	4.5	17.3	5.8	5.3	8.0	3.7
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	547	840	647	159	310	237	111	927	370	106	915	365
V/C Ratio(X)	1.02	0.82	0.17	0.44	0.58	0.45	0.73	0.77	0.37	0.89	0.40	0.47
Avail Cap(c_a), veh/h	547	1220	940	212	722	552	111	1188	474	106	1176	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	22.2	15.1	42.8	35.7	34.8	42.4	31.7	16.9	43.0	28.4	4.5
Incr Delay (d2), s/veh	44.4	3.0	0.1	1.9	1.7	1.3	21.4	2.4	0.6	53.9	0.3	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	20.6	16.0	1.7	0.9	4.4	2.5	2.7	8.8	2.6	4.0	3.9	3.3
LnGrp Delay(d),s/veh	75.2	25.2	15.2	44.7	37.4	36.1	63.7	34.1	17.5	97.0	28.7	5.4
LnGrp LOS	F	C	B	D	D	D	E	C	B	F	C	A
Approach Vol, veh/h		1357			356			935			634	
Approach Delay, s/veh		45.0			38.4			34.2			32.6	
Approach LOS		D			D			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	28.3	8.6	45.8	10.3	28.0	35.0	19.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.7	29.8	4.9	59.4	5.0	29.5	29.7	34.6
Max Q Clear Time (g_c+I1), s	7.3	19.3	4.0	32.0	6.5	10.0	33.0	10.3
Green Ext Time (p_c), s	0.0	2.8	0.0	6.2	0.0	2.4	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	481	593	94	67	155	91	72	640	142	81	326	146
Future Volume (veh/h)	481	593	94	67	155	91	72	640	142	81	326	146
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		0.97
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	559	690	109	78	180	106	84	744	165	94	379	170
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	527	775	597	120	311	238	116	957	382	107	937	374
Arrive On Green	0.32	0.42	0.42	0.07	0.17	0.17	0.07	0.27	0.27	0.07	0.26	0.26
Sat Flow, veh/h	1634	1863	1434	1634	1863	1424	1634	3539	1412	1634	3539	1412
Grp Volume(v), veh/h	559	690	109	78	180	106	84	744	165	94	379	170
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1634	1863	1424	1634	1770	1412	1634	1770	1412
Q Serve(g_s), s	29.5	31.4	4.4	4.3	8.2	6.1	4.6	17.8	6.5	5.2	8.1	3.7
Cycle Q Clear(g_c), s	29.5	31.4	4.4	4.3	8.2	6.1	4.6	17.8	6.5	5.2	8.1	3.7
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	527	775	597	120	311	238	116	957	382	107	937	374
V/C Ratio(X)	1.06	0.89	0.18	0.65	0.58	0.45	0.72	0.78	0.43	0.88	0.40	0.45
Avail Cap(c_a), veh/h	527	1097	844	143	730	558	116	1202	480	107	1183	472
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	31.0	24.8	16.9	41.3	35.2	34.3	41.6	30.9	15.2	42.4	27.7	4.6
Incr Delay (d2), s/veh	56.4	6.9	0.1	7.8	1.7	1.3	19.9	2.6	0.8	50.7	0.3	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	21.4	17.6	1.8	2.2	4.3	2.5	2.7	9.0	3.1	3.9	4.0	3.2
LnGrp Delay(d),s/veh	87.5	31.7	17.0	49.1	36.9	35.6	61.5	33.4	15.9	93.2	28.0	5.5
LnGrp LOS	F	C	B	D	D	D	E	C	B	F	C	A
Approach Vol, veh/h		1358			364			993			643	
Approach Delay, s/veh		53.5			39.1			32.9			31.6	
Approach LOS		D			D			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	28.7	10.7	42.1	10.5	28.2	33.5	19.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.7	29.8	6.7	52.6	5.2	29.3	24.7	34.6
Max Q Clear Time (g_c+I1), s	7.2	19.8	6.3	33.4	6.6	10.1	31.5	10.2
Green Ext Time (p_c), s	0.0	2.9	0.0	3.4	0.0	2.5	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	481	593	94	67	155	91	72	640	142	81	326	146
Future Volume (veh/h)	481	593	94	67	155	91	72	640	142	81	326	146
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		0.97
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	559	690	109	78	180	106	84	744	165	94	379	170
Adj No. of Lanes	2	1	1	2	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	911	744	573	173	310	237	129	1013	484	141	1039	834
Arrive On Green	0.29	0.40	0.40	0.05	0.17	0.17	0.08	0.29	0.29	0.09	0.29	0.29
Sat Flow, veh/h	3170	1863	1434	3170	1863	1424	1634	3539	1413	1634	3539	1413
Grp Volume(v), veh/h	559	690	109	78	180	106	84	744	165	94	379	170
Grp Sat Flow(s),veh/h/ln	1585	1863	1434	1585	1863	1424	1634	1770	1413	1634	1770	1413
Q Serve(g_s), s	14.1	32.6	4.6	2.2	8.2	4.7	4.6	17.5	8.0	5.1	7.8	1.4
Cycle Q Clear(g_c), s	14.1	32.6	4.6	2.2	8.2	4.7	4.6	17.5	8.0	5.1	7.8	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	911	744	573	173	310	237	129	1013	484	141	1039	834
V/C Ratio(X)	0.61	0.93	0.19	0.45	0.58	0.45	0.65	0.73	0.34	0.67	0.36	0.20
Avail Cap(c_a), veh/h	911	778	599	426	725	555	418	1251	579	363	1132	871
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	26.4	18.0	42.3	35.4	19.9	41.2	29.7	22.7	40.8	25.8	2.6
Incr Delay (d2), s/veh	1.2	16.8	0.2	1.8	1.7	1.3	5.4	1.8	0.4	5.3	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	6.3	20.1	1.8	1.0	4.4	2.3	2.3	8.8	3.2	2.5	3.8	0.9
LnGrp Delay(d),s/veh	29.7	43.2	18.1	44.1	37.2	21.2	46.6	31.5	23.1	46.2	26.0	2.7
LnGrp LOS	C	D	B	D	D	C	D	C	C	D	C	A
Approach Vol, veh/h		1358			364			993			643	
Approach Delay, s/veh		35.6			34.0			31.4			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	12.0	30.4	9.0	40.8	11.3	31.1	30.5	19.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.2	31.3	11.1	37.2	22.3	28.2	13.7	34.6
Max Q Clear Time (g_c+I1), s	7.1	19.5	4.2	34.6	6.6	9.8	16.1	10.2
Green Ext Time (p_c), s	0.2	5.1	0.1	1.0	0.2	6.2	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.7
HCM 2010 LOS	C

Intersection 2
Tucker Rd & Valley Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	278	73	109	323	85	239	156	189	179	274	325
Future Volume (veh/h)	244	278	73	109	323	85	239	156	189	179	274	325
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	271	309	81	121	359	94	266	173	210	199	304	361
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	397	724	186	172	450	323	324	517	449	255	885	331
Arrive On Green	0.13	0.26	0.26	0.11	0.24	0.23	0.20	0.29	0.29	0.16	0.25	0.24
Sat Flow, veh/h	3170	2767	712	1634	1863	1429	1634	1770	1534	1634	3539	1409
Grp Volume(v), veh/h	271	195	195	121	359	94	266	173	210	199	304	361
Grp Sat Flow(s),veh/h/ln	1585	1770	1709	1634	1863	1429	1634	1770	1534	1634	1770	1409
Q Serve(g_s), s	7.1	7.9	8.2	6.2	15.7	3.1	13.5	6.6	9.7	10.1	6.1	14.2
Cycle Q Clear(g_c), s	7.1	7.9	8.2	6.2	15.7	3.1	13.5	6.6	9.7	10.1	6.1	14.2
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	397	463	447	172	450	323	324	517	449	255	885	331
V/C Ratio(X)	0.68	0.42	0.43	0.70	0.80	0.29	0.82	0.33	0.47	0.78	0.34	1.09
Avail Cap(c_a), veh/h	439	568	548	217	587	428	415	686	595	322	1172	445
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	36.3	26.6	26.7	37.5	30.9	12.1	33.3	24.1	25.1	35.1	26.7	16.0
Incr Delay (d2), s/veh	3.8	0.6	0.7	7.3	5.8	0.5	9.9	0.4	0.8	9.1	0.2	67.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.9	4.0	3.1	8.8	1.8	6.9	3.3	4.2	5.2	3.0	12.2
LnGrp Delay(d),s/veh	40.0	27.2	27.3	44.8	36.7	12.6	43.2	24.4	25.9	44.2	26.9	83.7
LnGrp LOS	D	C	C	D	D	B	D	C	C	D	C	F
Approach Vol, veh/h		661			574			649			864	
Approach Delay, s/veh		32.5			34.5			32.6			54.6	
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	17.5	29.3	13.1	26.7	21.2	25.7	14.9	24.9
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	15.8	32.3	10.2	26.5	20.7	27.4	10.7	26.0
Max Q Clear Time (g_c+I1), s	12.1	11.7	8.2	10.2	15.5	16.2	9.1	17.7
Green Ext Time (p_c), s	0.2	4.3	0.1	2.3	0.4	3.5	0.5	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	278	81	143	323	85	244	192	209	179	337	325
Future Volume (veh/h)	244	278	81	143	323	85	244	192	209	179	337	325
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	271	309	90	159	359	94	271	213	232	199	374	361
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	695	198	220	463	331	268	382	330	307	849	315
Arrive On Green	0.14	0.26	0.26	0.13	0.25	0.23	0.16	0.22	0.22	0.19	0.24	0.22
Sat Flow, veh/h	3170	2697	769	1634	1863	1429	1634	1770	1528	1634	3539	1408
Grp Volume(v), veh/h	271	201	198	159	359	94	271	213	232	199	374	361
Grp Sat Flow(s),veh/h/ln	1585	1770	1697	1634	1863	1429	1634	1770	1528	1634	1770	1408
Q Serve(g_s), s	6.3	7.5	7.7	7.3	14.1	4.3	12.9	8.4	11.0	8.9	7.1	11.6
Cycle Q Clear(g_c), s	6.3	7.5	7.7	7.3	14.1	4.3	12.9	8.4	11.0	8.9	7.1	11.6
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	456	437	220	463	331	268	382	330	307	849	315
V/C Ratio(X)	0.59	0.44	0.45	0.72	0.78	0.28	1.01	0.56	0.70	0.65	0.44	1.15
Avail Cap(c_a), veh/h	726	617	591	372	647	472	268	639	552	307	1296	493
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	31.5	24.4	24.5	32.6	27.5	24.8	32.9	27.5	28.5	29.5	25.4	13.4
Incr Delay (d2), s/veh	1.2	0.7	0.7	4.4	3.9	0.5	57.8	1.3	2.7	4.7	0.4	86.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.7	3.7	3.6	7.8	1.7	10.0	4.3	4.9	4.4	3.5	12.8
LnGrp Delay(d),s/veh	32.7	25.1	25.3	37.0	31.4	25.3	90.7	28.7	31.2	34.2	25.8	99.6
LnGrp LOS	C	C	C	D	C	C	F	C	C	C	C	F
Approach Vol, veh/h		670			612			716			934	
Approach Delay, s/veh		28.2			32.0			53.0			56.1	
Approach LOS		C			C			D			E	

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	18.8	21.0	14.6	24.3	16.9	22.9	15.3	23.5
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	12.0	27.1	16.6	26.1	11.6	27.5	16.7	26.0
Max Q Clear Time (g_c+I1), s	10.9	13.0	9.3	9.7	14.9	13.6	8.3	16.1
Green Ext Time (p_c), s	0.5	1.4	0.3	2.3	0.0	3.0	1.8	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	278	81	143	323	85	244	192	209	179	337	325
Future Volume (veh/h)	244	278	81	143	323	85	244	192	209	179	337	325
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		0.96	1.00		0.98	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	1863	1863	1750	1863	1863	1863	1716	1863	1750	1863	1863	1716
Adj Flow Rate, veh/h	271	309	90	159	359	94	271	213	232	199	374	361
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	419	505	144	330	468	390	338	464	401	273	740	422
Arrive On Green	0.12	0.19	0.19	0.19	0.25	0.25	0.21	0.26	0.24	0.15	0.21	0.19
Sat Flow, veh/h	3442	2694	768	1774	1863	1552	1634	1770	1531	1774	3539	1405
Grp Volume(v), veh/h	271	201	198	159	359	94	271	213	232	199	374	361
Grp Sat Flow(s),veh/h/ln	1721	1770	1692	1774	1863	1552	1634	1770	1531	1774	1770	1405
Q Serve(g_s), s	5.7	7.9	8.2	6.1	13.6	2.2	12.0	7.7	10.1	8.1	7.1	6.8
Cycle Q Clear(g_c), s	5.7	7.9	8.2	6.1	13.6	2.2	12.0	7.7	10.1	8.1	7.1	6.8
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	419	331	317	330	468	390	338	464	401	273	740	422
V/C Ratio(X)	0.65	0.61	0.63	0.48	0.77	0.24	0.80	0.46	0.58	0.73	0.51	0.85
Avail Cap(c_a), veh/h	517	639	611	330	688	573	461	690	597	491	1362	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	28.3	28.4	27.6	26.3	8.4	28.6	23.5	25.0	30.6	26.5	8.1
Incr Delay (d2), s/veh	2.0	1.8	2.0	1.1	3.1	0.3	7.1	0.7	1.3	3.7	0.5	6.4
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	2.8	4.0	4.0	3.1	7.4	1.0	6.0	3.8	4.4	4.3	3.5	3.7
LnGrp Delay(d),s/veh	33.7	30.0	30.4	28.7	29.4	8.7	35.7	24.2	26.3	34.3	27.1	14.5
LnGrp LOS	C	C	C	C	C	A	D	C	C	C	C	B
Approach Vol, veh/h		670			612			716			934	
Approach Delay, s/veh		31.6			26.0			29.2			23.7	
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	15.7	23.9	18.1	18.2	19.7	19.9	13.2	23.1
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.7	28.3	10.7	26.1	20.1	27.9	10.1	26.7
Max Q Clear Time (g_c+I1), s	10.1	12.1	8.1	10.2	14.0	9.1	7.7	15.6
Green Ext Time (p_c), s	0.4	4.6	0.5	1.2	0.5	4.8	0.3	1.3

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)	261	317	78	138	368	170	294	204	241	322	321	347
Future Volume (veh/h)	261	317	78	138	368	170	294	204	241	322	321	347
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	290	352	87	153	409	189	327	227	268	358	357	386
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	755	184	202	478	348	244	394	340	356	1031	392
Arrive On Green	0.14	0.27	0.27	0.12	0.26	0.24	0.15	0.22	0.22	0.22	0.29	0.28
Sat Flow, veh/h	3170	2803	682	1634	1863	1429	1634	1770	1529	1634	3539	1412
Grp Volume(v), veh/h	290	220	219	153	409	189	327	227	268	358	357	386
Grp Sat Flow(s),veh/h/ln	1585	1770	1716	1634	1863	1429	1634	1770	1529	1634	1770	1412
Q Serve(g_s), s	8.4	10.0	10.3	8.7	20.1	11.1	14.4	11.0	15.9	21.0	7.7	17.7
Cycle Q Clear(g_c), s	8.4	10.0	10.3	8.7	20.1	11.1	14.4	11.0	15.9	21.0	7.7	17.7
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	477	462	202	478	348	244	394	340	356	1031	392
V/C Ratio(X)	0.67	0.46	0.47	0.76	0.85	0.54	1.34	0.58	0.79	1.00	0.35	0.98
Avail Cap(c_a), veh/h	560	557	540	238	528	386	244	527	456	356	1297	499
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	39.5	29.4	29.5	40.8	34.1	31.8	40.9	33.4	35.3	37.6	26.9	15.9
Incr Delay (d2), s/veh	2.1	0.7	0.8	11.1	12.1	1.3	177.2	1.3	6.5	48.8	0.2	32.8
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	3.8	5.0	5.0	4.6	11.9	4.5	18.5	5.5	7.3	14.2	3.7	10.9
LnGrp Delay(d),s/veh	41.6	30.1	30.2	51.9	46.2	33.1	218.2	34.7	41.8	86.5	27.1	48.7
LnGrp LOS	D	C	C	D	D	C	F	C	D	F	C	D
Approach Vol, veh/h		729			751			822			1101	
Approach Delay, s/veh		34.7			44.0			110.0			54.0	
Approach LOS		C			D			F			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	25.0	25.4	15.9	29.9	18.4	32.0	17.1	28.7
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.7	27.4	12.7	29.0	13.1	34.0	15.7	26.0
Max Q Clear Time (g_c+I1), s	23.0	17.9	10.7	12.3	16.4	19.7	10.4	22.1
Green Ext Time (p_c), s	0.0	1.4	0.1	2.6	0.0	4.1	1.5	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	61.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	317	86	172	368	170	299	240	261	322	384	347
Future Volume (veh/h)	261	317	86	172	368	170	299	240	261	322	384	347
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	290	352	96	191	409	189	332	267	290	358	427	386
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	666	179	240	475	346	186	413	357	349	1180	453
Arrive On Green	0.14	0.24	0.24	0.15	0.25	0.24	0.11	0.23	0.23	0.21	0.33	0.32
Sat Flow, veh/h	3170	2738	735	1634	1863	1429	1634	1770	1530	1634	3539	1415
Grp Volume(v), veh/h	290	225	223	191	409	189	332	267	290	358	427	386
Grp Sat Flow(s),veh/h/ln	1585	1770	1703	1634	1863	1429	1634	1770	1530	1634	1770	1415
Q Serve(g_s), s	8.6	10.9	11.2	11.1	20.6	11.4	11.2	13.4	17.6	21.0	9.0	16.6
Cycle Q Clear(g_c), s	8.6	10.9	11.2	11.1	20.6	11.4	11.2	13.4	17.6	21.0	9.0	16.6
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	430	414	240	475	346	186	413	357	349	1180	453
V/C Ratio(X)	0.68	0.52	0.54	0.79	0.86	0.55	1.78	0.65	0.81	1.03	0.36	0.85
Avail Cap(c_a), veh/h	548	495	476	279	517	378	186	516	446	349	1385	535
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	40.5	32.3	32.4	40.5	35.0	32.6	43.6	34.0	35.6	38.7	24.9	13.7
Incr Delay (d2), s/veh	2.3	1.0	1.1	12.9	13.1	1.4	373.8	1.9	8.8	55.1	0.2	11.1
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	3.9	5.4	5.4	5.8	12.3	4.6	24.3	6.7	8.3	14.7	4.4	8.5
LnGrp Delay(d),s/veh	42.7	33.3	33.5	53.4	48.0	33.9	417.3	35.9	44.5	93.7	25.0	24.8
LnGrp LOS	D	C	C	D	D	C	F	D	D	F	C	C
Approach Vol, veh/h		738			789			889			1171	
Approach Delay, s/veh		37.1			46.0			181.2			46.0	
Approach LOS		D			D			F			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	25.0	27.0	18.5	27.9	15.2	36.8	17.3	29.1
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	19.7	27.4	15.5	26.2	9.9	37.2	15.7	26.0
Max Q Clear Time (g_c+I1), s	23.0	19.6	13.1	13.2	13.2	18.6	10.6	22.6
Green Ext Time (p_c), s	0.0	1.4	0.1	2.4	0.0	4.8	1.4	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	77.6
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	317	86	172	368	170	299	240	261	322	384	347
Future Volume (veh/h)	261	317	86	172	368	170	299	240	261	322	384	347
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		0.96	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	1863	1863	1750	1863	1863	1863	1716	1863	1750	1863	1863	1716
Adj Flow Rate, veh/h	290	352	96	191	409	189	332	267	290	358	427	386
Adj No. of Lanes	2	2	0	1	2	1	1	2	0	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	541	145	262	776	340	413	534	463	518	707	421
Arrive On Green	0.13	0.20	0.20	0.15	0.22	0.22	0.25	0.30	0.29	0.15	0.20	0.18
Sat Flow, veh/h	3442	2736	734	1774	3539	1551	1634	1770	1534	3442	3539	1426
Grp Volume(v), veh/h	290	226	222	191	409	189	332	267	290	358	427	386
Grp Sat Flow(s),veh/h/ln	1721	1770	1701	1774	1770	1551	1634	1770	1534	1721	1770	1426
Q Serve(g_s), s	6.3	9.3	9.5	8.1	8.1	8.6	15.0	9.8	13.0	7.8	8.7	7.9
Cycle Q Clear(g_c), s	6.3	9.3	9.5	8.1	8.1	8.6	15.0	9.8	13.0	7.8	8.7	7.9
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	350	336	262	776	340	413	534	463	518	707	421
V/C Ratio(X)	0.67	0.65	0.66	0.73	0.53	0.56	0.80	0.50	0.63	0.69	0.60	0.92
Avail Cap(c_a), veh/h	532	614	590	279	1238	542	474	731	634	767	1224	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	32.9	29.1	29.2	32.1	27.2	27.4	27.7	22.7	24.3	31.8	28.7	8.9
Incr Delay (d2), s/veh	2.4	2.0	2.2	8.8	0.6	1.4	8.7	0.7	1.4	1.7	0.8	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	4.7	4.7	4.6	4.0	3.8	7.7	4.9	5.6	3.8	4.3	4.9
LnGrp Delay(d),s/veh	35.3	31.1	31.5	40.9	27.8	28.8	36.3	23.4	25.7	33.4	29.6	22.6
LnGrp LOS	D	C	C	D	C	C	D	C	C	C	C	C
Approach Vol, veh/h		738			789			889			1171	
Approach Delay, s/veh		32.9			31.2			29.0			28.5	
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	15.9	27.8	15.6	19.6	23.9	19.8	13.9	21.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	16.3	31.3	11.1	26.1	21.6	26.0	10.9	26.3
Max Q Clear Time (g_c+I1), s	9.8	15.0	10.1	11.5	17.0	10.7	8.3	10.6
Green Ext Time (p_c), s	0.8	3.2	0.4	1.4	1.6	3.1	0.3	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	362	89	167	454	193	475	322	298	392	428	403
Future Volume (veh/h)	300	362	89	167	454	193	475	322	298	392	428	403
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		0.96	1.00		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	333	402	99	186	504	214	528	358	331	436	476	448
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	527	128	305	444	324	247	443	383	385	1185	458
Arrive On Green	0.14	0.19	0.19	0.19	0.24	0.23	0.15	0.25	0.25	0.24	0.33	0.32
Sat Flow, veh/h	3170	2800	681	1634	1863	1429	1634	1770	1532	1634	3539	1415
Grp Volume(v), veh/h	333	252	249	186	504	214	528	358	331	436	476	448
Grp Sat Flow(s),veh/h/ln	1585	1770	1712	1634	1863	1429	1634	1770	1532	1634	1770	1415
Q Serve(g_s), s	11.6	15.5	15.8	12.0	27.3	9.2	17.3	21.8	23.7	27.0	11.8	35.9
Cycle Q Clear(g_c), s	11.6	15.5	15.8	12.0	27.3	9.2	17.3	21.8	23.7	27.0	11.8	35.9
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	333	322	305	444	324	247	443	383	385	1185	458
V/C Ratio(X)	0.77	0.76	0.77	0.61	1.14	0.66	2.14	0.81	0.86	1.13	0.40	0.98
Avail Cap(c_a), veh/h	581	474	458	305	444	324	247	443	383	385	1185	458
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	47.8	44.1	44.2	42.8	43.7	14.1	48.7	40.4	41.1	43.8	29.3	38.4
Incr Delay (d2), s/veh	4.4	4.3	5.1	3.5	85.6	4.9	527.0	10.7	18.0	87.2	0.2	36.3
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	5.4	8.0	7.9	5.7	24.5	4.1	43.8	12.0	11.9	21.4	5.9	18.6
LnGrp Delay(d),s/veh	52.2	48.4	49.3	46.3	129.2	19.0	575.6	51.0	59.1	131.0	29.5	74.7
LnGrp LOS	D	D	D	D	F	B	F	D	E	F	C	E
Approach Vol, veh/h		834			904			1217			1360	
Approach Delay, s/veh		50.2			86.1			280.8			76.9	
Approach LOS		D			F			F			E	

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	31.0	32.7	25.4	25.6	21.3	42.4	19.6	31.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	25.7	27.4	16.3	29.4	16.0	37.1	19.7	26.0
Max Q Clear Time (g_c+I1), s	29.0	25.7	14.0	17.8	19.3	37.9	13.6	29.3
Green Ext Time (p_c), s	0.0	1.0	0.5	1.4	0.0	0.0	0.7	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	131.2
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	362	97	201	454	193	480	358	318	392	491	403
Future Volume (veh/h)	300	362	97	201	454	193	480	358	318	392	491	403
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	333	402	108	223	504	214	533	398	353	436	546	448
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	460	642	170	240	439	321	222	439	380	381	1221	472
Arrive On Green	0.14	0.23	0.23	0.15	0.24	0.22	0.14	0.25	0.25	0.23	0.34	0.33
Sat Flow, veh/h	3170	2746	728	1634	1863	1428	1634	1770	1531	1634	3539	1415
Grp Volume(v), veh/h	333	257	253	223	504	214	533	398	353	436	546	448
Grp Sat Flow(s),veh/h/ln	1585	1770	1704	1634	1863	1428	1634	1770	1531	1634	1770	1415
Q Serve(g_s), s	11.6	15.1	15.4	15.6	27.3	9.4	15.8	25.3	26.1	27.0	13.8	35.7
Cycle Q Clear(g_c), s	11.6	15.1	15.4	15.6	27.3	9.4	15.8	25.3	26.1	27.0	13.8	35.7
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	460	414	399	240	439	321	222	439	380	381	1221	472
V/C Ratio(X)	0.72	0.62	0.63	0.93	1.15	0.67	2.40	0.91	0.93	1.14	0.45	0.95
Avail Cap(c_a), veh/h	575	478	461	240	439	321	222	439	380	381	1250	484
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	47.3	39.8	39.9	48.8	44.2	14.5	50.0	42.3	42.6	44.4	29.4	37.6
Incr Delay (d2), s/veh	3.4	1.9	2.3	39.3	89.9	5.2	642.1	22.4	29.1	91.5	0.3	28.1
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	5.3	7.6	7.5	9.7	24.9	4.2	46.7	15.1	14.1	21.8	6.8	17.6
LnGrp Delay(d),s/veh	50.7	41.7	42.1	88.1	134.2	19.7	692.1	64.6	71.7	135.9	29.6	65.7
LnGrp LOS	D	D	D	F	F	B	F	E	E	F	C	E
Approach Vol, veh/h		843			941			1284			1430	
Approach Delay, s/veh		45.4			97.2			327.1			73.3	
Approach LOS		D			F			F			E	

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	31.0	32.7	21.0	31.1	19.8	43.9	20.8	31.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	25.7	27.4	15.7	30.0	13.5	39.6	19.7	26.0
Max Q Clear Time (g_c+I1), s	29.0	28.1	17.6	17.4	17.8	37.7	13.6	29.3
Green Ext Time (p_c), s	0.0	0.0	0.0	2.8	0.0	0.9	1.9	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	145.5
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	362	97	201	454	193	480	358	318	392	491	403
Future Volume (veh/h)	300	362	97	201	454	193	480	358	318	392	491	403
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		0.96	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	1863	1863	1750	1863	1863	1863	1716	1863	1750	1863	1863	1716
Adj Flow Rate, veh/h	333	402	108	223	504	214	533	398	353	436	546	448
Adj No. of Lanes	2	2	0	1	2	1	2	2	0	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	523	561	149	278	740	324	645	531	460	560	917	550
Arrive On Green	0.15	0.20	0.20	0.16	0.21	0.21	0.20	0.30	0.29	0.16	0.26	0.24
Sat Flow, veh/h	3442	2744	728	1774	3539	1550	3170	1770	1534	3442	3539	1429
Grp Volume(v), veh/h	333	257	253	223	504	214	533	398	353	436	546	448
Grp Sat Flow(s),veh/h/ln	1721	1770	1703	1774	1770	1550	1585	1770	1534	1721	1770	1429
Q Serve(g_s), s	8.2	12.3	12.6	11.0	11.9	7.4	14.6	18.4	19.1	11.0	12.3	10.3
Cycle Q Clear(g_c), s	8.2	12.3	12.6	11.0	11.9	7.4	14.6	18.4	19.1	11.0	12.3	10.3
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	523	362	348	278	740	324	645	531	460	560	917	550
V/C Ratio(X)	0.64	0.71	0.73	0.80	0.68	0.66	0.83	0.75	0.77	0.78	0.60	0.81
Avail Cap(c_a), veh/h	523	535	514	278	1147	502	703	601	521	630	1065	610
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	36.1	33.6	33.7	36.9	33.1	13.7	34.6	28.7	29.5	36.4	29.4	8.2
Incr Delay (d2), s/veh	2.6	2.6	2.9	15.5	1.1	2.3	7.5	4.6	6.0	5.5	0.7	7.6
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	4.1	6.3	6.2	6.6	5.9	4.4	7.0	9.6	8.9	5.6	6.1	5.2
LnGrp Delay(d),s/veh	38.7	36.2	36.6	52.4	34.2	16.0	42.1	33.3	35.5	41.9	30.1	15.9
LnGrp LOS	D	D	D	D	C	B	D	C	D	D	C	B
Approach Vol, veh/h		843			941			1284			1430	
Approach Delay, s/veh		37.3			34.4			37.6			29.3	
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	18.8	31.2	18.2	22.5	22.5	27.5	17.8	23.0
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	15.3	29.5	12.9	26.1	18.8	26.0	10.9	28.1
Max Q Clear Time (g_c+I1), s	13.0	21.1	13.0	14.6	16.6	14.3	10.2	13.9
Green Ext Time (p_c), s	0.5	4.8	0.0	1.5	0.6	6.0	0.2	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	210	37	49	223	61	93	118	90	111	74	140
Future Volume (veh/h)	177	210	37	49	223	61	93	118	90	111	74	140
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	233	276	49	64	293	80	122	155	118	146	97	184
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	423	965	169	115	482	336	157	350	246	225	781	277
Arrive On Green	0.13	0.32	0.32	0.07	0.26	0.24	0.10	0.18	0.18	0.14	0.22	0.20
Sat Flow, veh/h	3170	2997	524	1634	1863	1429	1634	1954	1373	1634	3539	1406
Grp Volume(v), veh/h	233	161	164	64	293	80	122	139	134	146	97	184
Grp Sat Flow(s),veh/h/ln	1585	1770	1751	1634	1863	1429	1634	1770	1557	1634	1770	1406
Q Serve(g_s), s	3.8	3.7	3.9	2.1	7.6	1.5	4.0	3.9	4.2	4.7	1.2	6.7
Cycle Q Clear(g_c), s	3.8	3.7	3.9	2.1	7.6	1.5	4.0	3.9	4.2	4.7	1.2	6.7
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	423	570	564	115	482	336	157	317	279	225	781	277
V/C Ratio(X)	0.55	0.28	0.29	0.56	0.61	0.24	0.78	0.44	0.48	0.65	0.12	0.66
Avail Cap(c_a), veh/h	749	1055	1044	223	924	675	157	913	804	225	1826	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	13.9	13.9	24.8	17.9	6.1	24.3	20.1	20.3	22.5	17.2	20.4
Incr Delay (d2), s/veh	1.1	0.3	0.3	4.2	1.2	0.4	21.1	1.0	1.3	6.4	0.1	2.7
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	1.7	1.9	1.9	1.1	4.1	0.6	2.7	1.9	1.9	2.5	0.6	2.8
LnGrp Delay(d),s/veh	23.4	14.2	14.2	28.9	19.2	6.5	45.4	21.1	21.6	28.9	17.3	23.1
LnGrp LOS	C	B	B	C	B	A	D	C	C	C	B	C
Approach Vol, veh/h		558			437			395			427	
Approach Delay, s/veh		18.1			18.3			28.8			23.8	
Approach LOS		B			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	11.6	13.9	7.9	21.7	9.3	16.1	11.3	18.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	4.0	27.1	6.2	31.5	4.0	27.1	11.7	26.0
Max Q Clear Time (g_c+I1), s	6.7	6.2	4.1	5.9	6.0	8.7	5.8	9.6
Green Ext Time (p_c), s	0.0	0.9	0.0	2.5	0.0	1.0	0.4	2.3

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)	177	210	39	59	223	61	101	173	121	111	92	140
Future Volume (veh/h)	177	210	39	59	223	61	101	173	121	111	92	140
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	233	276	51	78	293	80	133	228	159	146	121	184
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	480	910	165	131	436	304	228	443	293	218	759	272
Arrive On Green	0.15	0.31	0.31	0.08	0.23	0.21	0.14	0.22	0.22	0.13	0.21	0.19
Sat Flow, veh/h	3170	2976	541	1634	1863	1428	1634	2010	1332	1634	3539	1405
Grp Volume(v), veh/h	233	162	165	78	293	80	133	199	188	146	121	184
Grp Sat Flow(s),veh/h/ln	1585	1770	1747	1634	1863	1428	1634	1770	1572	1634	1770	1405
Q Serve(g_s), s	4.1	4.3	4.4	2.8	8.8	1.8	4.7	6.1	6.5	5.2	1.7	7.5
Cycle Q Clear(g_c), s	4.1	4.3	4.4	2.8	8.8	1.8	4.7	6.1	6.5	5.2	1.7	7.5
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.85	1.00		1.00
Lane Grp Cap(c), veh/h	480	541	534	131	436	304	228	390	346	218	759	272
V/C Ratio(X)	0.49	0.30	0.31	0.60	0.67	0.26	0.58	0.51	0.54	0.67	0.16	0.68
Avail Cap(c_a), veh/h	1445	1218	1203	346	828	604	479	827	734	532	1769	672
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	23.9	16.3	16.4	27.3	21.4	8.2	24.8	21.0	21.2	25.3	19.6	23.0
Incr Delay (d2), s/veh	0.8	0.3	0.3	4.3	1.8	0.5	2.4	1.0	1.3	3.5	0.1	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	2.2	1.4	4.7	1.1	2.3	3.0	2.9	2.6	0.8	3.1
LnGrp Delay(d),s/veh	24.6	16.6	16.7	31.6	23.2	8.6	27.1	22.1	22.5	28.8	19.7	25.9
LnGrp LOS	C	B	B	C	C	A	C	C	C	C	B	C
Approach Vol, veh/h		560			451			520			451	
Approach Delay, s/veh		20.0			22.0			23.5			25.2	
Approach LOS		B			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	17.5	8.9	22.8	12.6	17.2	13.3	18.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	18.7	27.4	11.7	41.0	16.7	29.4	26.7	26.0
Max Q Clear Time (g_c+I1), s	7.2	8.5	4.8	6.4	6.7	9.5	6.1	10.8
Green Ext Time (p_c), s	0.3	1.8	0.1	2.1	1.4	1.1	2.0	1.1

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)	177	210	39	59	223	61	101	173	121	111	92	140
Future Volume (veh/h)	177	210	39	59	223	61	101	173	121	111	92	140
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		0.96	1.00		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	233	276	51	78	293	80	133	228	159	146	121	184
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	549	100	311	452	347	324	436	289	217	536	341
Arrive On Green	0.13	0.18	0.18	0.19	0.24	0.24	0.20	0.22	0.19	0.13	0.15	0.13
Sat Flow, veh/h	3170	2973	540	1634	1863	1429	1634	2009	1330	1634	3539	1393
Grp Volume(v), veh/h	233	162	165	78	293	80	133	199	188	146	121	184
Grp Sat Flow(s),veh/h/ln	1585	1770	1743	1634	1863	1429	1634	1770	1569	1634	1770	1393
Q Serve(g_s), s	4.0	4.8	5.0	2.4	8.2	2.6	4.1	5.8	6.3	5.0	1.7	2.8
Cycle Q Clear(g_c), s	4.0	4.8	5.0	2.4	8.2	2.6	4.1	5.8	6.3	5.0	1.7	2.8
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.85	1.00		1.00
Lane Grp Cap(c), veh/h	420	327	322	311	452	347	324	384	341	217	536	341
V/C Ratio(X)	0.55	0.50	0.51	0.25	0.65	0.23	0.41	0.52	0.55	0.67	0.23	0.54
Avail Cap(c_a), veh/h	865	1027	1011	337	956	734	393	927	822	356	1774	828
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	23.7	21.3	21.4	20.0	19.8	17.7	20.4	20.1	20.8	24.0	21.7	5.6
Incr Delay (d2), s/veh	1.1	1.2	1.3	0.4	1.6	0.3	0.8	1.1	1.4	3.6	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.5	2.5	1.1	4.4	1.1	1.9	2.9	2.8	2.4	0.9	1.5
LnGrp Delay(d),s/veh	24.8	22.5	22.6	20.5	21.4	18.0	21.2	21.2	22.2	27.6	21.9	7.0
LnGrp LOS	C	C	C	C	C	B	C	C	C	C	C	A
Approach Vol, veh/h		560			451			520			451	
Approach Delay, s/veh		23.5			20.6			21.6			17.7	
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	11.7	16.6	15.1	14.8	15.6	12.8	11.7	18.1
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	11.4	29.2	10.7	32.5	12.7	27.9	14.6	28.6
Max Q Clear Time (g_c+I1), s	7.0	8.3	4.4	7.0	6.1	4.8	6.0	10.2
Green Ext Time (p_c), s	0.2	1.8	0.9	1.1	1.1	1.2	0.6	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	230	39	82	265	175	114	151	109	171	95	149
Future Volume (veh/h)	188	230	39	82	265	175	114	151	109	171	95	149
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		0.98	1.00		0.96	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	247	303	51	108	349	230	150	199	143	225	125	196
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	907	151	165	475	339	215	388	263	297	868	320
Arrive On Green	0.15	0.30	0.30	0.10	0.26	0.24	0.13	0.20	0.20	0.18	0.25	0.23
Sat Flow, veh/h	3170	3023	502	1634	1863	1429	1634	1990	1345	1634	3539	1409
Grp Volume(v), veh/h	247	176	178	108	349	230	150	176	166	225	125	196
Grp Sat Flow(s),veh/h/ln	1585	1770	1756	1634	1863	1429	1634	1770	1566	1634	1770	1409
Q Serve(g_s), s	5.2	5.6	5.7	4.6	12.4	6.2	6.3	6.4	6.9	9.4	2.0	5.8
Cycle Q Clear(g_c), s	5.2	5.6	5.7	4.6	12.4	6.2	6.3	6.4	6.9	9.4	2.0	5.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	462	531	527	165	475	339	215	345	306	297	868	320
V/C Ratio(X)	0.53	0.33	0.34	0.66	0.73	0.68	0.70	0.51	0.54	0.76	0.14	0.61
Avail Cap(c_a), veh/h	1100	891	884	363	706	516	449	705	624	521	1566	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	19.6	19.7	31.2	24.6	8.8	29.9	25.9	26.1	28.0	21.3	10.4
Incr Delay (d2), s/veh	1.0	0.4	0.4	4.4	2.2	2.4	4.0	1.2	1.5	3.9	0.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7	2.8	2.3	6.6	3.6	3.1	3.2	3.1	4.6	1.0	3.1
LnGrp Delay(d),s/veh	29.5	20.0	20.0	35.6	26.8	11.2	33.9	27.1	27.6	31.9	21.4	12.3
LnGrp LOS	C	B	C	D	C	B	C	C	C	C	C	B
Approach Vol, veh/h		601			687			492			546	
Approach Delay, s/veh		23.9			22.9			29.4			22.4	
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	17.1	18.1	11.3	25.6	13.5	21.7	14.5	22.4
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	21.7	27.4	14.7	35.0	18.5	30.6	23.7	26.0
Max Q Clear Time (g_c+I1), s	11.4	8.9	6.6	7.7	8.3	7.8	7.2	14.4
Green Ext Time (p_c), s	0.5	2.4	0.2	2.3	0.3	2.6	2.1	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	230	41	92	265	175	122	206	140	171	113	149
Future Volume (veh/h)	188	230	41	92	265	175	122	206	140	171	113	149
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	247	303	54	121	349	230	161	271	184	225	149	196
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	852	150	179	468	335	304	434	283	294	738	269
Arrive On Green	0.14	0.28	0.28	0.11	0.25	0.23	0.19	0.21	0.21	0.18	0.21	0.19
Sat Flow, veh/h	3170	2994	526	1634	1863	1429	1634	2023	1321	1634	3539	1405
Grp Volume(v), veh/h	247	177	180	121	349	230	161	236	219	225	149	196
Grp Sat Flow(s),veh/h/ln	1585	1770	1750	1634	1863	1429	1634	1770	1574	1634	1770	1405
Q Serve(g_s), s	5.5	6.0	6.2	5.4	13.1	6.7	6.7	9.1	9.6	9.9	2.6	9.9
Cycle Q Clear(g_c), s	5.5	6.0	6.2	5.4	13.1	6.7	6.7	9.1	9.6	9.9	2.6	9.9
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.84	1.00		1.00
Lane Grp Cap(c), veh/h	452	504	498	179	468	335	304	380	338	294	738	269
V/C Ratio(X)	0.55	0.35	0.36	0.68	0.75	0.69	0.53	0.62	0.65	0.77	0.20	0.73
Avail Cap(c_a), veh/h	1048	826	817	367	672	491	447	672	597	497	1451	552
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	30.1	21.5	21.6	32.4	26.1	9.7	27.8	26.9	27.1	29.5	24.7	28.7
Incr Delay (d2), s/veh	1.0	0.4	0.4	4.4	2.7	2.5	1.4	1.7	2.1	4.2	0.1	3.8
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	2.5	3.0	3.1	2.6	7.0	3.9	3.2	4.6	4.3	4.8	1.3	4.1
LnGrp Delay(d),s/veh	31.2	21.9	22.0	36.8	28.8	12.2	29.2	28.6	29.2	33.7	24.9	32.5
LnGrp LOS	C	C	C	D	C	B	C	C	C	C	C	C
Approach Vol, veh/h		604			700			616			570	
Approach Delay, s/veh		25.7			24.7			29.0			31.0	
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	17.6	20.2	12.3	25.5	18.1	19.8	14.8	23.0
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	21.7	27.4	15.7	34.0	19.4	29.7	23.7	26.0
Max Q Clear Time (g_c+I1), s	11.9	11.6	7.4	8.2	8.7	11.9	7.5	15.1
Green Ext Time (p_c), s	0.5	2.1	0.2	2.3	1.8	1.2	2.1	1.7

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)	188	230	41	92	265	175	122	206	140	171	113	149
Future Volume (veh/h)	188	230	41	92	265	175	122	206	140	171	113	149
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		0.96	1.00		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	247	303	54	121	349	230	161	271	184	225	149	196
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	2	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	419	556	98	348	497	382	327	464	303	388	538	347
Arrive On Green	0.13	0.19	0.19	0.21	0.27	0.27	0.20	0.23	0.21	0.12	0.15	0.13
Sat Flow, veh/h	3170	2991	525	1634	1863	1430	1634	2022	1320	3170	3539	1394
Grp Volume(v), veh/h	247	177	180	121	349	230	161	236	219	225	149	196
Grp Sat Flow(s),veh/h/ln	1585	1770	1746	1634	1863	1430	1634	1770	1573	1585	1770	1394
Q Serve(g_s), s	4.7	5.8	6.0	4.0	10.9	9.0	5.6	7.6	8.1	4.3	2.4	3.5
Cycle Q Clear(g_c), s	4.7	5.8	6.0	4.0	10.9	9.0	5.6	7.6	8.1	4.3	2.4	3.5
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.84	1.00		1.00
Lane Grp Cap(c), veh/h	419	329	325	348	497	382	327	406	361	388	538	347
V/C Ratio(X)	0.59	0.54	0.55	0.35	0.70	0.60	0.49	0.58	0.61	0.58	0.28	0.56
Avail Cap(c_a), veh/h	785	931	919	348	867	666	356	840	747	627	1609	769
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	23.7	23.7	21.5	21.2	20.6	22.8	22.0	22.7	26.6	24.1	6.6
Incr Delay (d2), s/veh	1.3	1.4	1.5	0.6	1.8	1.5	1.2	1.3	1.6	1.4	0.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.0	3.0	1.9	5.8	3.7	2.7	3.8	3.7	1.9	1.2	1.8
LnGrp Delay(d),s/veh	27.6	25.0	25.2	22.1	23.1	22.1	24.0	23.3	24.3	28.0	24.4	8.0
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	C	A
Approach Vol, veh/h		604			700			616			570	
Approach Delay, s/veh		26.1			22.6			23.8			20.2	
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	11.9	18.7	17.7	15.9	16.8	13.8	12.5	21.1
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	11.4	29.2	10.7	32.5	12.7	27.9	14.6	28.6
Max Q Clear Time (g_c+I1), s	6.3	10.1	6.0	8.0	7.6	5.5	6.7	12.9
Green Ext Time (p_c), s	0.4	2.2	1.2	1.2	1.1	1.3	0.6	2.0

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)	216	264	45	95	325	191	185	240	136	215	124	173
Future Volume (veh/h)	216	264	45	95	325	191	185	240	136	215	124	173
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	284	347	59	125	428	251	243	316	179	283	163	228
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	916	154	174	497	362	297	467	257	336	845	317
Arrive On Green	0.14	0.30	0.30	0.11	0.27	0.25	0.18	0.21	0.21	0.21	0.24	0.23
Sat Flow, veh/h	3170	3017	507	1634	1863	1430	1634	2173	1197	1634	3539	1409
Grp Volume(v), veh/h	284	202	204	125	428	251	243	256	239	283	163	228
Grp Sat Flow(s),veh/h/ln	1585	1770	1755	1634	1863	1430	1634	1770	1601	1634	1770	1409
Q Serve(g_s), s	8.0	8.5	8.7	7.0	20.6	8.9	13.5	12.5	13.0	15.7	3.5	9.7
Cycle Q Clear(g_c), s	8.0	8.5	8.7	7.0	20.6	8.9	13.5	12.5	13.0	15.7	3.5	9.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	452	537	533	174	497	362	297	380	344	336	845	317
V/C Ratio(X)	0.63	0.38	0.38	0.72	0.86	0.69	0.82	0.67	0.70	0.84	0.19	0.72
Avail Cap(c_a), veh/h	806	720	714	223	539	394	391	538	487	416	1129	430
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	38.1	25.8	25.9	40.8	32.9	11.2	37.1	34.0	34.2	36.0	28.7	16.0
Incr Delay (d2), s/veh	1.4	0.4	0.5	7.8	12.6	4.7	9.8	2.1	2.5	12.1	0.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	4.2	4.3	3.5	12.3	5.3	6.9	6.3	6.0	8.2	1.7	4.8
LnGrp Delay(d),s/veh	39.5	26.3	26.3	48.6	45.5	15.9	46.9	36.1	36.7	48.1	28.8	19.8
LnGrp LOS	D	C	C	D	D	B	D	D	D	D	C	B
Approach Vol, veh/h		690			804			738			674	
Approach Delay, s/veh		31.7			36.7			39.9			33.8	
Approach LOS		C			D			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	23.4	24.3	14.0	32.6	21.2	26.5	17.5	29.2
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	22.7	27.4	11.6	37.1	21.3	28.8	22.7	26.0
Max Q Clear Time (g_c+I1), s	17.7	15.0	9.0	10.7	15.5	11.7	10.0	22.6
Green Ext Time (p_c), s	0.4	2.9	0.1	2.6	0.4	3.3	2.2	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	35.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	264	47	105	325	191	193	295	167	215	142	173
Future Volume (veh/h)	216	264	47	105	325	191	193	295	167	215	142	173
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		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	284	347	62	138	428	251	254	388	220	283	187	228
Adj No. of Lanes	2	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	859	152	185	486	355	305	512	285	332	897	339
Arrive On Green	0.14	0.29	0.29	0.11	0.26	0.25	0.19	0.24	0.24	0.20	0.25	0.24
Sat Flow, veh/h	3170	2991	528	1634	1863	1430	1634	2163	1207	1634	3539	1410
Grp Volume(v), veh/h	284	204	205	138	428	251	254	316	292	283	187	228
Grp Sat Flow(s),veh/h/ln	1585	1770	1750	1634	1863	1430	1634	1770	1601	1634	1770	1410
Q Serve(g_s), s	8.5	9.3	9.5	8.2	22.1	9.7	15.0	16.6	17.1	16.7	4.2	10.2
Cycle Q Clear(g_c), s	8.5	9.3	9.5	8.2	22.1	9.7	15.0	16.6	17.1	16.7	4.2	10.2
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	442	508	502	185	486	355	305	419	379	332	897	339
V/C Ratio(X)	0.64	0.40	0.41	0.74	0.88	0.71	0.83	0.76	0.77	0.85	0.21	0.67
Avail Cap(c_a), veh/h	759	657	649	230	507	371	382	507	458	391	1035	394
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	40.8	28.8	28.9	43.0	35.5	12.6	39.3	35.6	35.7	38.5	29.5	16.6
Incr Delay (d2), s/veh	1.6	0.5	0.5	9.7	15.9	5.8	12.2	5.2	6.5	14.5	0.1	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.6	4.6	4.2	13.4	5.7	7.8	8.8	8.2	8.9	2.1	5.0
LnGrp Delay(d),s/veh	42.3	29.3	29.4	52.8	51.4	18.4	51.4	40.8	42.2	52.9	29.6	20.2
LnGrp LOS	D	C	C	D	D	B	D	D	D	D	C	C
Approach Vol, veh/h		693			817			862			698	
Approach Delay, s/veh		34.7			41.5			44.4			36.0	
Approach LOS		C			D			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	24.4	27.7	15.4	32.8	22.7	29.4	18.0	30.2
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	22.7	27.4	12.8	35.9	22.1	28.0	22.7	26.0
Max Q Clear Time (g_c+I1), s	18.7	19.1	10.2	11.5	17.0	12.2	10.5	24.1
Green Ext Time (p_c), s	0.4	2.8	0.1	2.6	0.4	3.8	2.2	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	39.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	264	47	105	325	191	193	295	167	215	142	173
Future Volume (veh/h)	216	264	47	105	325	191	193	295	167	215	142	173
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		0.96	1.00		0.98	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	1750	1716	1863	1716	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	284	347	62	138	428	251	254	388	220	283	187	228
Adj No. of Lanes	2	2	0	1	2	1	2	2	0	2	2	1
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	438	574	101	324	892	360	756	551	307	427	534	364
Arrive On Green	0.14	0.19	0.19	0.20	0.25	0.25	0.24	0.25	0.24	0.13	0.15	0.13
Sat Flow, veh/h	3170	2988	527	1634	3539	1430	3170	2163	1207	3170	3539	1420
Grp Volume(v), veh/h	284	204	205	138	428	251	254	316	292	283	187	228
Grp Sat Flow(s),veh/h/ln	1585	1770	1746	1634	1770	1430	1585	1770	1601	1585	1770	1420
Q Serve(g_s), s	6.2	7.6	7.8	5.4	7.5	11.6	4.8	11.8	12.1	6.2	3.4	4.3
Cycle Q Clear(g_c), s	6.2	7.6	7.8	5.4	7.5	11.6	4.8	11.8	12.1	6.2	3.4	4.3
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	438	340	335	324	892	360	756	451	408	427	534	364
V/C Ratio(X)	0.65	0.60	0.61	0.43	0.48	0.70	0.34	0.70	0.72	0.66	0.35	0.63
Avail Cap(c_a), veh/h	695	824	813	324	1458	589	756	744	673	555	1424	721
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	29.6	26.8	26.8	25.5	23.1	24.6	22.9	24.5	25.1	29.8	27.6	7.8
Incr Delay (d2), s/veh	1.6	1.7	1.8	0.9	0.4	2.4	0.3	2.0	2.4	1.9	0.4	1.8
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	2.8	3.9	3.9	2.5	3.7	4.8	2.1	6.0	5.6	2.8	1.7	2.2
LnGrp Delay(d),s/veh	31.2	28.5	28.7	26.4	23.5	27.1	23.1	26.5	27.5	31.7	28.0	9.6
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	C	A
Approach Vol, veh/h		693			817			862			698	
Approach Delay, s/veh		29.7			25.1			25.8			23.5	
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	13.8	22.5	18.4	17.9	21.3	14.9	14.0	22.3
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	11.4	29.2	10.7	32.5	12.7	27.9	14.6	28.6
Max Q Clear Time (g_c+I1), s	8.2	14.1	7.4	9.8	6.8	6.3	8.2	13.6
Green Ext Time (p_c), s	0.3	2.2	1.2	1.4	1.9	1.6	0.6	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Intersection 3
Curry St & Valley Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	153	85	49	154	23	72	110	36	17	134	146
Future Volume (veh/h)	83	153	85	49	154	23	72	110	36	17	134	146
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		0.96	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	95	176	98	56	177	26	83	126	41	20	154	168
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	389	298	161	377	285	126	311	234	204	400	302
Arrive On Green	0.11	0.21	0.21	0.10	0.20	0.20	0.08	0.17	0.17	0.12	0.21	0.21
Sat Flow, veh/h	1634	1863	1428	1634	1863	1406	1634	1863	1401	1634	1863	1408
Grp Volume(v), veh/h	95	176	98	56	177	26	83	126	41	20	154	168
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1406	1634	1863	1401	1634	1863	1408
Q Serve(g_s), s	2.2	3.3	2.3	1.3	3.3	0.6	2.0	2.4	1.0	0.4	2.8	4.2
Cycle Q Clear(g_c), s	2.2	3.3	2.3	1.3	3.3	0.6	2.0	2.4	1.0	0.4	2.8	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	172	389	298	161	377	285	126	311	234	204	400	302
V/C Ratio(X)	0.55	0.45	0.33	0.35	0.47	0.09	0.66	0.41	0.18	0.10	0.38	0.56
Avail Cap(c_a), veh/h	532	1353	1037	368	1167	881	491	1447	1088	205	1120	846
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	17.0	13.8	13.4	16.8	14.0	12.9	17.9	14.9	14.3	15.5	13.4	14.0
Incr Delay (d2), s/veh	2.8	0.8	0.6	1.3	0.9	0.1	5.8	0.9	0.4	0.2	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	1.0	0.6	1.8	0.2	1.1	1.3	0.4	0.2	1.5	1.8
LnGrp Delay(d),s/veh	19.7	14.6	14.0	18.1	14.9	13.1	23.7	15.7	14.6	15.7	14.0	15.6
LnGrp LOS	B	B	B	B	B	B	C	B	B	B	B	B
Approach Vol, veh/h		369			259			250			342	
Approach Delay, s/veh		15.8			15.4			18.2			14.9	
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	9.0	10.7	7.9	12.3	7.1	12.6	8.2	12.1
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.4	30.4	7.7	27.7	11.4	23.4	11.7	23.7
Max Q Clear Time (g_c+I1), s	2.4	4.4	3.3	5.3	4.0	6.2	4.2	5.3
Green Ext Time (p_c), s	0.0	0.5	0.2	0.9	0.1	1.1	0.2	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	156	85	55	164	23	72	113	39	17	139	160
Future Volume (veh/h)	90	156	85	55	164	23	72	113	39	17	139	160
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		0.96	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	103	179	98	63	189	26	83	130	45	20	160	184
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	384	294	179	382	288	124	310	233	216	414	313
Arrive On Green	0.11	0.21	0.21	0.11	0.21	0.21	0.08	0.17	0.17	0.13	0.22	0.22
Sat Flow, veh/h	1634	1863	1427	1634	1863	1407	1634	1863	1401	1634	1863	1408
Grp Volume(v), veh/h	103	179	98	63	189	26	83	130	45	20	160	184
Grp Sat Flow(s),veh/h/ln	1634	1863	1427	1634	1863	1407	1634	1863	1401	1634	1863	1408
Q Serve(g_s), s	2.5	3.5	2.4	1.5	3.7	0.6	2.1	2.6	1.1	0.4	3.0	4.8
Cycle Q Clear(g_c), s	2.5	3.5	2.4	1.5	3.7	0.6	2.1	2.6	1.1	0.4	3.0	4.8
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	181	384	294	179	382	288	124	310	233	216	414	313
V/C Ratio(X)	0.57	0.47	0.33	0.35	0.49	0.09	0.67	0.42	0.19	0.09	0.39	0.59
Avail Cap(c_a), veh/h	512	1212	929	433	1122	847	472	1391	1047	216	1077	814
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	17.5	14.5	14.0	17.1	14.6	13.4	18.7	15.5	14.9	15.8	13.7	14.4
Incr Delay (d2), s/veh	2.8	0.9	0.7	1.2	1.0	0.1	6.1	0.9	0.4	0.2	0.6	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	1.3	1.9	1.0	0.7	2.0	0.2	1.1	1.4	0.5	0.2	1.6	2.0
LnGrp Delay(d),s/veh	20.3	15.3	14.7	18.3	15.6	13.5	24.7	16.4	15.3	16.0	14.3	16.2
LnGrp LOS	C	B	B	B	B	B	C	B	B	B	B	B
Approach Vol, veh/h		380			278			258			364	
Approach Delay, s/veh		16.5			16.0			18.9			15.3	
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	9.5	10.9	8.6	12.6	7.2	13.2	8.6	12.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.4	30.4	9.7	25.7	11.4	23.4	11.7	23.7
Max Q Clear Time (g_c+I1), s	2.4	4.6	3.5	5.5	4.1	6.8	4.5	5.7
Green Ext Time (p_c), s	0.0	0.6	0.2	0.9	0.1	1.1	0.3	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	156	85	55	164	23	72	113	39	17	139	160
Future Volume (veh/h)	90	156	85	55	164	23	72	113	39	17	139	160
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	1716
Adj Flow Rate, veh/h	103	179	98	63	189	26	83	130	45	20	160	184
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	459	352	129	409	309	123	504	382	55	427	323
Arrive On Green	0.11	0.25	0.25	0.08	0.22	0.22	0.08	0.27	0.27	0.03	0.23	0.23
Sat Flow, veh/h	1634	1863	1430	1634	1863	1408	1634	1863	1412	1634	1863	1409
Grp Volume(v), veh/h	103	179	98	63	189	26	83	130	45	20	160	184
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1408	1634	1863	1412	1634	1863	1409
Q Serve(g_s), s	2.6	3.5	2.4	1.6	3.8	0.6	2.1	2.4	1.0	0.5	3.1	5.0
Cycle Q Clear(g_c), s	2.6	3.5	2.4	1.6	3.8	0.6	2.1	2.4	1.0	0.5	3.1	5.0
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	173	459	352	129	409	309	123	504	382	55	427	323
V/C Ratio(X)	0.60	0.39	0.28	0.49	0.46	0.08	0.68	0.26	0.12	0.36	0.37	0.57
Avail Cap(c_a), veh/h	200	991	761	200	991	749	310	1116	846	174	961	727
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	13.6	13.2	19.1	14.6	13.4	19.5	12.4	11.9	20.4	14.0	14.8
Incr Delay (d2), s/veh	3.6	0.5	0.4	2.8	0.8	0.1	6.4	0.3	0.1	4.0	0.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.8	1.0	0.8	2.0	0.3	1.2	1.2	0.4	0.3	1.7	2.0
LnGrp Delay(d),s/veh	22.1	14.1	13.6	21.9	15.5	13.5	25.8	12.6	12.0	24.4	14.6	16.3
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		380			278			258			364	
Approach Delay, s/veh		16.1			16.7			16.8			16.0	
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	5.5	15.7	7.4	14.6	7.2	13.9	8.6	13.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	7.6	21.7	4.0	21.7
Max Q Clear Time (g_c+I1), s	2.5	4.4	3.6	5.5	4.1	7.0	4.6	5.8
Green Ext Time (p_c), s	0.0	1.8	0.0	1.6	0.1	1.7	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	331	93	56	271	73	80	122	40	97	145	158
Future Volume (veh/h)	91	331	93	56	271	73	80	122	40	97	145	158
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		0.96	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	105	380	107	64	311	84	92	140	46	111	167	182
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	574	441	120	478	362	144	371	280	160	389	294
Arrive On Green	0.12	0.31	0.31	0.07	0.26	0.26	0.09	0.20	0.20	0.10	0.21	0.21
Sat Flow, veh/h	1634	1863	1432	1634	1863	1411	1634	1863	1406	1634	1863	1407
Grp Volume(v), veh/h	105	380	107	64	311	84	92	140	46	111	167	182
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1411	1634	1863	1406	1634	1863	1407
Q Serve(g_s), s	3.0	8.8	1.6	1.9	7.4	1.4	2.7	3.2	1.3	3.3	3.9	5.9
Cycle Q Clear(g_c), s	3.0	8.8	1.6	1.9	7.4	1.4	2.7	3.2	1.3	3.3	3.9	5.9
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	204	574	441	120	478	362	144	371	280	160	389	294
V/C Ratio(X)	0.52	0.66	0.24	0.53	0.65	0.23	0.64	0.38	0.16	0.69	0.43	0.62
Avail Cap(c_a), veh/h	460	1235	949	361	1123	850	427	1085	819	492	1160	876
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	20.4	15.0	4.1	22.2	16.5	4.9	21.9	17.3	16.5	21.7	17.1	17.9
Incr Delay (d2), s/veh	2.0	1.3	0.3	3.7	1.5	0.3	4.6	0.6	0.3	5.3	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.7	1.0	1.0	4.0	0.9	1.4	1.7	0.5	1.7	2.1	2.4
LnGrp Delay(d),s/veh	22.4	16.3	4.4	25.9	18.0	5.3	26.6	17.9	16.8	27.0	17.9	20.0
LnGrp LOS	C	B	A	C	B	A	C	B	B	C	B	C
Approach Vol, veh/h		592			459			278			460	
Approach Delay, s/veh		15.2			16.8			20.6			20.9	
Approach LOS		B			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	8.9	13.9	7.6	19.3	8.4	14.4	10.2	16.8
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	14.4	28.4	9.7	31.7	12.4	30.4	12.7	28.7
Max Q Clear Time (g_c+I1), s	5.3	5.2	3.9	10.8	4.7	7.9	5.0	9.4
Green Ext Time (p_c), s	0.2	0.9	0.1	2.1	0.6	1.2	1.4	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	334	93	62	281	73	80	125	43	97	150	172
Future Volume (veh/h)	98	334	93	62	281	73	80	125	43	97	150	172
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		0.96	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	113	384	107	71	323	84	92	144	49	111	172	198
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	584	449	126	521	395	133	293	221	238	413	312
Arrive On Green	0.11	0.31	0.31	0.08	0.28	0.28	0.08	0.16	0.16	0.15	0.22	0.22
Sat Flow, veh/h	1634	1863	1432	1634	1863	1413	1634	1863	1400	1634	1863	1408
Grp Volume(v), veh/h	113	384	107	71	323	84	92	144	49	111	172	198
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1413	1634	1863	1400	1634	1863	1408
Q Serve(g_s), s	3.4	9.3	2.9	2.2	7.9	1.2	2.9	3.7	1.1	3.3	4.1	6.6
Cycle Q Clear(g_c), s	3.4	9.3	2.9	2.2	7.9	1.2	2.9	3.7	1.1	3.3	4.1	6.6
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	181	584	449	126	521	395	133	293	221	238	413	312
V/C Ratio(X)	0.62	0.66	0.24	0.56	0.62	0.21	0.69	0.49	0.22	0.47	0.42	0.63
Avail Cap(c_a), veh/h	376	928	713	282	821	622	338	964	724	376	1006	761
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	22.2	15.5	13.3	23.2	16.4	3.8	23.3	20.1	9.4	20.4	17.4	18.4
Incr Delay (d2), s/veh	3.5	1.3	0.3	3.9	1.2	0.3	6.3	1.3	0.5	1.4	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.9	1.2	1.1	4.2	0.9	1.5	2.0	0.6	1.5	2.2	2.7
LnGrp Delay(d),s/veh	25.6	16.8	13.6	27.2	17.6	4.1	29.6	21.3	9.9	21.9	18.1	20.5
LnGrp LOS	C	B	B	C	B	A	C	C	A	C	B	C
Approach Vol, veh/h		604			478			285			481	
Approach Delay, s/veh		17.9			16.6			22.0			20.0	
Approach LOS		B			B			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	11.6	12.2	8.0	20.4	8.2	15.6	9.8	18.6
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	11.4	26.4	7.7	24.7	10.2	27.6	10.7	21.7
Max Q Clear Time (g_c+I1), s	5.3	5.7	4.2	11.3	4.9	8.6	5.4	9.9
Green Ext Time (p_c), s	1.0	0.6	0.0	2.9	0.1	1.7	0.1	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	334	93	62	281	73	80	125	43	97	150	172
Future Volume (veh/h)	98	334	93	62	281	73	80	125	43	97	150	172
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	113	384	107	71	323	84	92	144	49	111	172	198
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	574	441	126	524	398	132	399	301	146	415	318
Arrive On Green	0.10	0.31	0.31	0.08	0.28	0.28	0.08	0.21	0.21	0.09	0.22	0.22
Sat Flow, veh/h	1634	1863	1432	1634	1863	1413	1634	1863	1407	1634	1863	1428
Grp Volume(v), veh/h	113	384	107	71	323	84	92	144	49	111	172	198
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1413	1634	1863	1407	1634	1863	1428
Q Serve(g_s), s	3.4	9.2	2.9	2.2	7.7	2.3	2.8	3.4	1.5	3.4	4.1	6.4
Cycle Q Clear(g_c), s	3.4	9.2	2.9	2.2	7.7	2.3	2.8	3.4	1.5	3.4	4.1	6.4
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	169	574	441	126	524	398	132	399	301	146	415	318
V/C Ratio(X)	0.67	0.67	0.24	0.57	0.62	0.21	0.70	0.36	0.16	0.76	0.41	0.62
Avail Cap(c_a), veh/h	169	834	641	169	834	633	261	940	710	146	809	620
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	22.2	15.5	13.3	22.9	16.0	14.1	23.0	17.2	16.4	22.8	17.1	18.0
Incr Delay (d2), s/veh	9.8	1.4	0.3	4.0	1.2	0.3	6.4	0.6	0.3	20.2	0.7	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	2.0	4.9	1.2	1.1	4.1	0.9	1.5	1.8	0.6	2.4	2.1	2.7
LnGrp Delay(d),s/veh	32.0	16.8	13.6	26.8	17.2	14.4	29.4	17.7	16.7	43.0	17.8	20.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	D	B	C
Approach Vol, veh/h		604			478			285			481	
Approach Delay, s/veh		19.1			18.1			21.3			24.5	
Approach LOS		B			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	8.6	15.0	7.9	19.8	8.2	15.4	9.3	18.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	7.6	21.7	4.0	21.7
Max Q Clear Time (g_c+I1), s	5.4	5.4	4.2	11.2	4.8	8.4	5.4	9.7
Green Ext Time (p_c), s	0.0	2.0	0.0	2.6	0.1	1.8	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	372	116	75	332	82	102	156	51	101	175	191
Future Volume (veh/h)	113	372	116	75	332	82	102	156	51	101	175	191
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		0.96	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	130	428	133	86	382	94	117	179	59	116	201	220
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	608	468	140	545	414	164	311	234	258	418	316
Arrive On Green	0.12	0.33	0.33	0.09	0.29	0.29	0.10	0.17	0.17	0.16	0.22	0.22
Sat Flow, veh/h	1634	1863	1432	1634	1863	1413	1634	1863	1401	1634	1863	1409
Grp Volume(v), veh/h	130	428	133	86	382	94	117	179	59	116	201	220
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1413	1634	1863	1401	1634	1863	1409
Q Serve(g_s), s	4.6	12.2	4.2	3.1	11.1	1.6	4.2	5.4	1.6	3.9	5.7	8.7
Cycle Q Clear(g_c), s	4.6	12.2	4.2	3.1	11.1	1.6	4.2	5.4	1.6	3.9	5.7	8.7
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	195	608	468	140	545	414	164	311	234	258	418	316
V/C Ratio(X)	0.67	0.70	0.28	0.61	0.70	0.23	0.72	0.58	0.25	0.45	0.48	0.70
Avail Cap(c_a), veh/h	295	827	636	215	735	558	352	857	645	295	793	600
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	17.9	15.2	26.8	19.1	4.6	26.5	23.4	11.3	23.2	20.5	21.7
Incr Delay (d2), s/veh	3.9	1.7	0.3	4.3	1.9	0.3	5.7	1.7	0.6	1.2	0.9	2.8
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	2.3	6.5	1.7	1.6	5.9	1.1	2.1	2.9	0.8	1.9	3.0	3.6
LnGrp Delay(d),s/veh	29.5	19.6	15.5	31.1	21.0	4.9	32.3	25.1	11.8	24.4	21.4	24.4
LnGrp LOS	C	B	B	C	C	A	C	C	B	C	C	C
Approach Vol, veh/h		691			562			355			537	
Approach Delay, s/veh		20.7			19.9			25.2			23.3	
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	13.6	14.1	9.2	23.9	10.1	17.7	11.3	21.8
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	10.4	27.4	6.7	25.7	12.5	25.3	9.7	22.7
Max Q Clear Time (g_c+I1), s	5.9	7.4	5.1	14.2	6.2	10.7	6.6	13.1
Green Ext Time (p_c), s	0.9	0.7	0.0	3.2	0.1	1.8	0.1	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	375	116	81	342	82	102	159	54	101	180	205
Future Volume (veh/h)	120	375	116	81	342	82	102	159	54	101	180	205
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		0.96	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	138	431	133	93	393	94	117	183	62	116	207	236
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	608	468	148	545	414	163	310	234	267	429	324
Arrive On Green	0.12	0.33	0.33	0.09	0.29	0.29	0.10	0.17	0.17	0.16	0.23	0.23
Sat Flow, veh/h	1634	1863	1432	1634	1863	1413	1634	1863	1401	1634	1863	1409
Grp Volume(v), veh/h	138	431	133	93	393	94	117	183	62	116	207	236
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1413	1634	1863	1401	1634	1863	1409
Q Serve(g_s), s	5.1	12.8	4.4	3.5	12.0	1.7	4.4	5.7	1.7	4.0	6.1	9.8
Cycle Q Clear(g_c), s	5.1	12.8	4.4	3.5	12.0	1.7	4.4	5.7	1.7	4.0	6.1	9.8
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	204	608	468	148	545	414	163	310	234	267	429	324
V/C Ratio(X)	0.68	0.71	0.28	0.63	0.72	0.23	0.72	0.59	0.27	0.44	0.48	0.73
Avail Cap(c_a), veh/h	310	795	611	232	706	536	338	824	620	267	733	554
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	26.5	18.7	15.8	27.7	20.1	4.8	27.6	24.4	11.8	23.9	21.1	22.5
Incr Delay (d2), s/veh	3.9	2.0	0.3	4.3	2.5	0.3	5.8	1.8	0.6	1.1	0.8	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.9	1.8	1.8	6.5	1.2	2.2	3.1	0.9	1.9	3.2	4.1
LnGrp Delay(d),s/veh	30.4	20.7	16.1	32.1	22.6	5.1	33.5	26.1	12.4	25.0	21.9	25.6
LnGrp LOS	C	C	B	C	C	A	C	C	B	C	C	C
Approach Vol, veh/h		702			580			362			559	
Approach Delay, s/veh		21.7			21.3			26.2			24.1	
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	14.3	14.5	9.7	24.7	10.3	18.6	11.9	22.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	9.4	27.4	7.7	25.7	12.5	24.3	10.7	22.7
Max Q Clear Time (g_c+I1), s	6.0	7.7	5.5	14.8	6.4	11.8	7.1	14.0
Green Ext Time (p_c), s	0.8	0.8	0.0	3.2	0.1	1.7	0.1	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	375	116	81	342	82	102	159	54	101	180	205
Future Volume (veh/h)	120	375	116	81	342	82	102	159	54	101	180	205
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	138	431	133	93	393	94	117	183	62	116	207	236
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	579	445	144	579	440	161	482	365	125	440	338
Arrive On Green	0.09	0.31	0.31	0.09	0.31	0.31	0.10	0.26	0.26	0.08	0.24	0.24
Sat Flow, veh/h	1634	1863	1432	1634	1863	1414	1634	1863	1411	1634	1863	1429
Grp Volume(v), veh/h	138	431	133	93	393	94	117	183	62	116	207	236
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1414	1634	1863	1411	1634	1863	1429
Q Serve(g_s), s	5.1	12.5	4.2	3.3	11.1	3.0	4.2	4.9	2.0	4.2	5.7	9.1
Cycle Q Clear(g_c), s	5.1	12.5	4.2	3.3	11.1	3.0	4.2	4.9	2.0	4.2	5.7	9.1
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	144	579	445	144	579	440	161	482	365	125	440	338
V/C Ratio(X)	0.96	0.74	0.30	0.65	0.68	0.21	0.73	0.38	0.17	0.93	0.47	0.70
Avail Cap(c_a), veh/h	144	712	548	144	712	541	223	802	608	125	691	530
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	27.3	18.6	15.7	26.5	18.1	15.3	26.3	18.3	17.3	27.6	19.7	21.0
Incr Delay (d2), s/veh	62.3	3.4	0.4	9.6	1.9	0.2	7.1	0.5	0.2	58.7	0.8	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	4.8	6.9	1.7	1.9	6.0	1.2	2.2	2.6	0.8	3.9	3.0	3.8
LnGrp Delay(d),s/veh	89.6	21.9	16.1	36.1	20.0	15.5	33.4	18.8	17.5	86.3	20.5	23.6
LnGrp LOS	F	C	B	D	C	B	C	B	B	F	C	C
Approach Vol, veh/h		702			580			362			559	
Approach Delay, s/veh		34.1			21.9			23.3			35.5	
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	8.6	19.6	9.3	22.7	9.9	18.2	9.3	22.7
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	7.6	21.7	4.0	21.7
Max Q Clear Time (g_c+I1), s	6.2	6.9	5.3	14.5	6.2	11.1	7.1	13.1
Green Ext Time (p_c), s	0.0	2.4	0.0	2.5	0.0	2.0	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	261	54	60	203	36	54	83	110	11	24	23
Future Volume (veh/h)	64	261	54	60	203	36	54	83	110	11	24	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		0.96	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	83	339	70	78	264	47	70	108	143	14	31	30
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	568	437	142	560	425	167	378	286	46	241	180
Arrive On Green	0.09	0.31	0.31	0.09	0.30	0.30	0.10	0.20	0.20	0.03	0.13	0.13
Sat Flow, veh/h	1634	1863	1432	1634	1863	1414	1634	1863	1406	1634	1863	1393
Grp Volume(v), veh/h	83	339	70	78	264	47	70	108	143	14	31	30
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1414	1634	1863	1406	1634	1863	1393
Q Serve(g_s), s	2.1	6.6	0.8	1.9	4.9	1.0	1.7	2.1	3.8	0.4	0.6	0.5
Cycle Q Clear(g_c), s	2.1	6.6	0.8	1.9	4.9	1.0	1.7	2.1	3.8	0.4	0.6	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	150	568	437	142	560	425	167	378	286	46	241	180
V/C Ratio(X)	0.55	0.60	0.16	0.55	0.47	0.11	0.42	0.29	0.50	0.30	0.13	0.17
Avail Cap(c_a), veh/h	461	1270	976	307	1095	831	346	1358	1025	230	1226	917
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	12.6	2.6	18.6	12.1	10.8	17.9	14.3	15.0	20.2	16.4	6.9
Incr Delay (d2), s/veh	3.2	1.0	0.2	3.3	0.6	0.1	1.7	0.4	1.4	3.6	0.2	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	1.1	3.5	0.6	1.0	2.6	0.4	0.8	1.1	1.6	0.2	0.3	0.3
LnGrp Delay(d),s/veh	21.7	13.6	2.8	21.9	12.7	10.9	19.6	14.7	16.4	23.8	16.6	7.3
LnGrp LOS	C	B	A	C	B	B	B	B	B	C	B	A
Approach Vol, veh/h		492			389			321			75	
Approach Delay, s/veh		13.4			14.3			16.5			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	5.2	12.6	7.7	17.0	8.3	9.5	7.9	16.8
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	5.4	30.4	6.7	27.7	8.4	27.4	10.7	23.7
Max Q Clear Time (g_c+I1), s	2.4	5.8	3.9	8.6	3.7	2.6	4.1	6.9
Green Ext Time (p_c), s	0.0	1.1	0.0	2.5	0.5	0.2	0.1	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	266	54	62	206	36	54	88	115	11	25	28
Future Volume (veh/h)	75	266	54	62	206	36	54	88	115	11	25	28
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		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	125	443	90	103	343	60	90	147	192	18	42	47
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	515	396	142	415	314	621	820	624	37	154	113
Arrive On Green	0.14	0.28	0.28	0.09	0.22	0.22	0.38	0.44	0.44	0.02	0.08	0.08
Sat Flow, veh/h	1634	1863	1431	1634	1863	1408	1634	1863	1419	1634	1863	1373
Grp Volume(v), veh/h	125	443	90	103	343	60	90	147	192	18	42	47
Grp Sat Flow(s),veh/h/ln	1634	1863	1431	1634	1863	1408	1634	1863	1419	1634	1863	1373
Q Serve(g_s), s	6.6	20.8	1.4	5.7	16.1	2.6	3.3	4.4	8.1	1.0	1.9	3.0
Cycle Q Clear(g_c), s	6.6	20.8	1.4	5.7	16.1	2.6	3.3	4.4	8.1	1.0	1.9	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	229	515	396	142	415	314	621	820	624	37	154	113
V/C Ratio(X)	0.54	0.86	0.23	0.72	0.83	0.19	0.14	0.18	0.31	0.49	0.27	0.42
Avail Cap(c_a), veh/h	231	607	467	142	506	383	621	820	624	107	579	427
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	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	31.6	2.6	40.9	34.0	19.6	18.7	15.7	16.7	44.4	39.6	40.1
Incr Delay (d2), s/veh	2.5	10.1	0.3	16.7	9.1	0.3	0.1	0.5	1.3	9.7	4.4	10.8
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	3.1	12.1	0.6	3.2	9.3	1.0	1.5	2.4	3.3	0.5	1.2	1.5
LnGrp Delay(d),s/veh	39.3	41.7	2.8	57.7	43.1	19.9	18.8	16.1	18.0	54.1	44.0	50.9
LnGrp LOS	D	D	A	E	D	B	B	B	B	D	D	D
Approach Vol, veh/h		658			506			429			107	
Approach Delay, s/veh		35.9			43.3			17.5			48.7	
Approach LOS		D			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	6.1	44.5	12.0	29.4	39.0	11.6	16.9	24.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	5.4	31.4	6.7	28.7	8.8	28.0	11.7	23.7
Max Q Clear Time (g_c+I1), s	3.0	10.1	7.7	22.8	5.3	5.0	8.6	18.1
Green Ext Time (p_c), s	0.0	1.5	0.0	1.4	0.6	0.2	0.9	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	34.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	266	54	62	206	36	54	88	115	11	25	28
Future Volume (veh/h)	75	266	54	62	206	36	54	88	115	11	25	28
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	97	345	70	81	268	47	70	114	149	14	32	36
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	564	428	145	541	410	109	384	290	46	312	235
Arrive On Green	0.10	0.30	0.30	0.09	0.29	0.29	0.07	0.21	0.21	0.03	0.17	0.17
Sat Flow, veh/h	1634	1863	1414	1634	1863	1413	1634	1863	1407	1634	1863	1401
Grp Volume(v), veh/h	97	345	70	81	268	47	70	114	149	14	32	36
Grp Sat Flow(s),veh/h/ln	1634	1863	1414	1634	1863	1413	1634	1863	1407	1634	1863	1401
Q Serve(g_s), s	2.4	6.8	1.6	2.0	5.1	1.0	1.8	2.2	4.0	0.4	0.6	0.9
Cycle Q Clear(g_c), s	2.4	6.8	1.6	2.0	5.1	1.0	1.8	2.2	4.0	0.4	0.6	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	165	564	428	145	541	410	109	384	290	46	312	235
V/C Ratio(X)	0.59	0.61	0.16	0.56	0.50	0.11	0.64	0.30	0.51	0.30	0.10	0.15
Avail Cap(c_a), veh/h	202	1002	760	202	1002	760	374	1128	852	176	901	678
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	18.4	12.8	10.9	18.7	12.6	11.1	19.5	14.4	15.1	20.4	15.1	15.2
Incr Delay (d2), s/veh	3.3	1.1	0.2	3.3	0.7	0.1	6.1	0.4	1.4	3.6	0.1	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	1.2	3.6	0.6	1.0	2.7	0.4	1.0	1.2	1.6	0.2	0.3	0.4
LnGrp Delay(d),s/veh	21.6	13.8	11.1	22.0	13.3	11.3	25.6	14.8	16.5	24.0	15.2	15.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		512			396			333			82	
Approach Delay, s/veh		14.9			14.8			17.8			16.8	
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	5.2	12.8	7.8	17.0	6.9	11.2	8.3	16.4
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	9.2	20.1	4.0	21.7
Max Q Clear Time (g_c+I1), s	2.4	6.0	4.0	8.8	3.8	2.9	4.4	7.1
Green Ext Time (p_c), s	0.0	1.1	0.0	2.3	0.1	1.1	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	336	59	68	381	114	60	92	122	35	26	25
Future Volume (veh/h)	70	336	59	68	381	114	60	92	122	35	26	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		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	91	436	77	88	495	148	78	119	158	45	34	32
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	571	439	127	549	416	596	741	564	66	137	100
Arrive On Green	0.09	0.31	0.31	0.08	0.29	0.29	0.36	0.40	0.40	0.04	0.07	0.07
Sat Flow, veh/h	1634	1863	1432	1634	1863	1413	1634	1863	1417	1634	1863	1366
Grp Volume(v), veh/h	91	436	77	88	495	148	78	119	158	45	34	32
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1413	1634	1863	1417	1634	1863	1366
Q Serve(g_s), s	4.8	19.1	1.1	4.7	23.0	5.8	2.9	3.7	6.8	2.4	1.6	2.0
Cycle Q Clear(g_c), s	4.8	19.1	1.1	4.7	23.0	5.8	2.9	3.7	6.8	2.4	1.6	2.0
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	147	571	439	127	549	416	596	741	564	66	137	100
V/C Ratio(X)	0.62	0.76	0.18	0.69	0.90	0.36	0.13	0.16	0.28	0.69	0.25	0.32
Avail Cap(c_a), veh/h	200	642	493	127	559	424	596	741	564	127	546	401
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)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	28.3	2.1	40.5	30.5	15.1	19.1	17.4	18.4	42.6	39.4	39.6
Incr Delay (d2), s/veh	3.8	4.4	0.2	14.9	17.7	0.5	0.1	0.5	1.2	12.0	4.3	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	10.5	0.4	2.7	14.5	2.3	1.3	2.0	2.8	1.3	1.0	1.0
LnGrp Delay(d),s/veh	43.3	32.6	2.3	55.4	48.2	15.6	19.2	17.9	19.6	54.6	43.7	47.8
LnGrp LOS	D	C	A	E	D	B	B	B	B	D	D	D
Approach Vol, veh/h		604			731			355			111	
Approach Delay, s/veh		30.4			42.5			18.9			49.3	
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	7.6	39.8	11.0	31.6	36.8	10.6	12.1	30.5
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	6.4	28.4	5.7	29.7	9.0	25.8	9.7	25.7
Max Q Clear Time (g_c+I1), s	4.4	8.8	6.7	21.1	4.9	4.0	6.8	25.0
Green Ext Time (p_c), s	0.0	1.2	0.0	1.6	0.5	0.2	0.7	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	341	59	70	384	114	60	97	127	35	27	30
Future Volume (veh/h)	81	341	59	70	384	114	60	97	127	35	27	30
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		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	105	443	77	91	499	148	78	126	165	45	35	39
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	594	457	135	567	431	579	727	553	65	141	104
Arrive On Green	0.10	0.32	0.32	0.08	0.30	0.30	0.35	0.39	0.39	0.04	0.08	0.08
Sat Flow, veh/h	1634	1863	1432	1634	1863	1414	1634	1863	1417	1634	1863	1368
Grp Volume(v), veh/h	105	443	77	91	499	148	78	126	165	45	35	39
Grp Sat Flow(s),veh/h/ln	1634	1863	1432	1634	1863	1414	1634	1863	1417	1634	1863	1368
Q Serve(g_s), s	5.9	20.2	1.2	5.1	24.2	6.0	3.1	4.2	7.6	2.6	1.7	2.6
Cycle Q Clear(g_c), s	5.9	20.2	1.2	5.1	24.2	6.0	3.1	4.2	7.6	2.6	1.7	2.6
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	158	594	457	135	567	431	579	727	553	65	141	104
V/C Ratio(X)	0.67	0.75	0.17	0.68	0.88	0.34	0.13	0.17	0.30	0.69	0.25	0.38
Avail Cap(c_a), veh/h	189	675	519	182	667	506	579	727	553	103	461	338
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)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	28.9	2.3	42.4	31.4	15.7	20.8	18.9	20.0	45.0	41.3	41.8
Incr Delay (d2), s/veh	5.7	3.5	0.1	5.8	11.5	0.5	0.1	0.5	1.4	12.2	4.1	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	10.9	0.5	2.5	14.2	2.4	1.4	2.3	3.2	1.4	1.0	1.3
LnGrp Delay(d),s/veh	47.2	32.4	2.5	48.1	42.9	16.2	20.9	19.4	21.3	57.3	45.5	51.8
LnGrp LOS	D	C	A	D	D	B	C	B	C	E	D	D
Approach Vol, veh/h		625			738			369			119	
Approach Delay, s/veh		31.2			38.2			20.6			52.0	
Approach LOS		C			D			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	7.8	41.1	11.8	34.3	37.7	11.2	13.2	32.9
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	5.4	27.4	9.3	33.1	9.9	22.9	9.7	32.7
Max Q Clear Time (g_c+I1), s	4.6	9.6	7.1	22.2	5.1	4.6	7.9	26.2
Green Ext Time (p_c), s	0.0	1.2	0.0	1.8	0.6	0.2	0.5	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	341	59	70	384	114	60	97	127	35	27	30
Future Volume (veh/h)	81	341	59	70	384	114	60	97	127	35	27	30
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	105	443	77	91	499	148	78	126	165	45	35	39
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	675	513	150	662	503	114	372	281	78	331	250
Arrive On Green	0.10	0.36	0.36	0.09	0.36	0.36	0.07	0.20	0.20	0.05	0.18	0.18
Sat Flow, veh/h	1634	1863	1416	1634	1863	1416	1634	1863	1406	1634	1863	1403
Grp Volume(v), veh/h	105	443	77	91	499	148	78	126	165	45	35	39
Grp Sat Flow(s),veh/h/ln	1634	1863	1416	1634	1863	1416	1634	1863	1406	1634	1863	1403
Q Serve(g_s), s	3.3	10.7	2.0	2.9	12.7	4.0	2.5	3.1	5.7	1.4	0.8	1.3
Cycle Q Clear(g_c), s	3.3	10.7	2.0	2.9	12.7	4.0	2.5	3.1	5.7	1.4	0.8	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	161	675	513	150	662	503	114	372	281	78	331	250
V/C Ratio(X)	0.65	0.66	0.15	0.61	0.75	0.29	0.69	0.34	0.59	0.58	0.11	0.16
Avail Cap(c_a), veh/h	161	799	607	161	799	607	299	900	679	140	719	542
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	14.3	11.5	23.4	15.2	12.4	24.4	18.4	19.4	25.0	18.5	18.6
Incr Delay (d2), s/veh	8.9	1.5	0.1	5.7	3.3	0.3	7.1	0.5	1.9	6.6	0.1	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	1.9	5.7	0.8	1.5	7.0	1.6	1.4	1.7	2.3	0.8	0.4	0.5
LnGrp Delay(d),s/veh	32.1	15.8	11.7	29.1	18.6	12.8	31.5	18.9	21.4	31.6	18.6	18.9
LnGrp LOS	C	B	B	C	B	B	C	B	C	C	B	B
Approach Vol, veh/h		625			738			369			119	
Approach Delay, s/veh		18.1			18.7			22.7			23.6	
Approach LOS		B			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	6.6	14.7	8.9	23.4	7.7	13.5	9.3	23.1
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	9.2	20.1	4.0	21.7
Max Q Clear Time (g_c+I1), s	3.4	7.7	4.9	12.7	4.5	3.3	5.3	14.7
Green Ext Time (p_c), s	0.0	1.2	0.0	3.2	0.1	1.2	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	405	74	92	461	128	77	118	156	37	31	30
Future Volume (veh/h)	87	405	74	92	461	128	77	118	156	37	31	30
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		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	113	526	96	119	599	166	100	153	203	48	40	39
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	656	505	167	664	505	481	605	460	69	136	99
Arrive On Green	0.10	0.35	0.35	0.10	0.36	0.36	0.29	0.32	0.32	0.04	0.07	0.07
Sat Flow, veh/h	1634	1863	1433	1634	1863	1416	1634	1863	1415	1634	1863	1366
Grp Volume(v), veh/h	113	526	96	119	599	166	100	153	203	48	40	39
Grp Sat Flow(s),veh/h/ln	1634	1863	1433	1634	1863	1416	1634	1863	1415	1634	1863	1366
Q Serve(g_s), s	6.0	22.9	1.5	6.3	27.4	7.7	4.1	5.4	10.2	2.6	1.8	1.9
Cycle Q Clear(g_c), s	6.0	22.9	1.5	6.3	27.4	7.7	4.1	5.4	10.2	2.6	1.8	1.9
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	161	656	505	167	664	505	481	605	460	69	136	99
V/C Ratio(X)	0.70	0.80	0.19	0.71	0.90	0.33	0.21	0.25	0.44	0.69	0.29	0.39
Avail Cap(c_a), veh/h	171	675	519	178	683	519	481	605	460	91	472	346
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)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	26.3	2.7	39.1	27.5	21.1	23.9	22.3	23.9	42.5	39.5	24.5
Incr Delay (d2), s/veh	9.5	5.6	0.1	11.6	15.0	0.4	0.2	1.0	3.1	13.8	5.5	11.2
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	3.2	12.7	0.6	3.4	16.9	3.0	1.9	3.0	4.4	1.4	1.2	1.0
LnGrp Delay(d),s/veh	48.8	31.9	2.8	50.7	42.5	21.5	24.1	23.4	27.0	56.4	45.0	35.7
LnGrp LOS	D	C	A	D	D	C	C	C	C	E	D	D
Approach Vol, veh/h		735			884			456			127	
Approach Delay, s/veh		30.7			39.6			25.1			46.4	
Approach LOS		C			D			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	7.8	33.2	13.2	35.7	30.5	10.6	12.9	36.1
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.4	26.0	8.5	31.3	8.2	22.2	8.1	31.7
Max Q Clear Time (g_c+I1), s	4.6	12.2	8.3	24.9	6.1	3.9	8.0	29.4
Green Ext Time (p_c), s	0.0	1.4	0.0	3.1	0.4	0.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	410	74	94	464	128	77	123	161	37	32	35
Future Volume (veh/h)	98	410	74	94	464	128	77	123	161	37	32	35
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		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	127	532	96	122	603	166	100	160	209	48	42	45
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	669	515	170	661	503	465	601	457	69	150	110
Arrive On Green	0.11	0.36	0.36	0.10	0.36	0.36	0.28	0.32	0.32	0.04	0.08	0.08
Sat Flow, veh/h	1634	1863	1433	1634	1863	1416	1634	1863	1415	1634	1863	1372
Grp Volume(v), veh/h	127	532	96	122	603	166	100	160	209	48	42	45
Grp Sat Flow(s),veh/h/ln	1634	1863	1433	1634	1863	1416	1634	1863	1415	1634	1863	1372
Q Serve(g_s), s	7.0	23.8	1.6	6.7	28.7	6.0	4.3	5.9	10.9	2.7	2.0	2.9
Cycle Q Clear(g_c), s	7.0	23.8	1.6	6.7	28.7	6.0	4.3	5.9	10.9	2.7	2.0	2.9
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	176	669	515	170	661	503	465	601	457	69	150	110
V/C Ratio(X)	0.72	0.80	0.19	0.72	0.91	0.33	0.22	0.27	0.46	0.69	0.28	0.41
Avail Cap(c_a), veh/h	184	707	544	179	701	533	465	601	457	90	451	332
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)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	26.7	2.9	40.4	28.6	12.6	25.4	23.3	25.0	43.9	40.2	40.7
Incr Delay (d2), s/veh	9.9	4.8	0.1	12.4	15.7	0.4	0.2	1.1	3.3	14.5	4.6	10.8
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	3.6	13.2	0.6	3.6	17.6	2.4	2.0	3.2	4.7	1.5	1.2	1.4
LnGrp Delay(d),s/veh	50.1	31.6	3.1	52.7	44.3	13.0	25.6	24.4	28.3	58.5	44.8	51.4
LnGrp LOS	D	C	A	D	D	B	C	C	C	E	D	D
Approach Vol, veh/h		755			891			469			135	
Approach Delay, s/veh		31.1			39.6			26.4			51.9	
Approach LOS		C			D			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	7.9	34.0	13.7	37.4	30.5	11.5	14.0	37.0
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.5	25.8	8.9	34.0	8.4	21.9	9.2	33.7
Max Q Clear Time (g_c+I1), s	4.7	12.9	8.7	25.8	6.3	4.9	9.0	30.7
Green Ext Time (p_c), s	0.0	1.4	0.0	2.0	0.4	0.2	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	410	74	94	464	128	77	123	161	37	32	35
Future Volume (veh/h)	98	410	74	94	464	128	77	123	161	37	32	35
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		0.98
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	127	532	96	122	603	166	100	160	209	48	42	45
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	697	530	145	697	530	141	415	314	76	341	261
Arrive On Green	0.09	0.37	0.37	0.09	0.37	0.37	0.09	0.22	0.22	0.05	0.18	0.18
Sat Flow, veh/h	1634	1863	1417	1634	1863	1417	1634	1863	1408	1634	1863	1426
Grp Volume(v), veh/h	127	532	96	122	603	166	100	160	209	48	42	45
Grp Sat Flow(s),veh/h/ln	1634	1863	1417	1634	1863	1417	1634	1863	1408	1634	1863	1426
Q Serve(g_s), s	4.6	15.0	2.7	4.4	17.9	5.0	3.6	4.4	8.1	1.7	1.1	1.6
Cycle Q Clear(g_c), s	4.6	15.0	2.7	4.4	17.9	5.0	3.6	4.4	8.1	1.7	1.1	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	145	697	530	145	697	530	141	415	314	76	341	261
V/C Ratio(X)	0.88	0.76	0.18	0.84	0.87	0.31	0.71	0.39	0.67	0.63	0.12	0.17
Avail Cap(c_a), veh/h	145	717	545	145	717	545	268	807	610	126	645	494
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	26.9	16.4	12.6	26.8	17.3	13.3	26.6	19.8	21.2	28.0	20.4	20.6
Incr Delay (d2), s/veh	40.9	4.8	0.2	33.8	10.6	0.3	6.4	0.6	2.4	8.2	0.2	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	3.7	8.6	1.1	3.3	11.1	2.0	1.9	2.3	3.3	0.9	0.6	0.6
LnGrp Delay(d),s/veh	67.8	21.1	12.7	60.6	27.9	13.6	33.0	20.3	23.6	36.1	20.6	20.9
LnGrp LOS	E	C	B	E	C	B	C	C	C	D	C	C
Approach Vol, veh/h		755			891			469			135	
Approach Delay, s/veh		27.9			29.7			24.5			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	6.8	17.3	9.3	26.4	9.2	14.9	9.3	26.4
Change Period (Y+Rc), s	4.6	4.6	5.3	5.3	4.6	4.6	5.3	5.3
Max Green Setting (Gmax), s	4.0	25.3	4.0	21.7	9.2	20.1	4.0	21.7
Max Q Clear Time (g_c+I1), s	3.7	10.1	6.4	17.0	5.6	3.6	6.6	19.9
Green Ext Time (p_c), s	0.0	1.5	0.0	2.5	0.1	1.5	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Intersection 4
Tucker Rd & Highline Rd

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	59	87	1	0	14	153	80	0	5	12	1	0	75	16	90
Future Vol, veh/h	0	59	87	1	0	14	153	80	0	5	12	1	0	75	16	90
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	94	1	0	15	165	86	0	5	13	1	0	81	17	97
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	10	10	8.5	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	28%	40%	0%	6%	41%
Vol Thru, %	67%	60%	0%	62%	9%
Vol Right, %	6%	0%	100%	32%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	146	1	247	181
LT Vol	5	59	0	14	75
Through Vol	12	87	0	153	16
RT Vol	1	0	1	80	90
Lane Flow Rate	19	157	1	266	195
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.028	0.24	0.001	0.339	0.258
Departure Headway (Hd)	5.254	5.494	4.585	4.589	4.767
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	676	652	776	781	749
Service Time	3.329	3.251	2.341	2.64	2.819
HCM Lane V/C Ratio	0.028	0.241	0.001	0.341	0.26
HCM Control Delay	8.5	10	7.3	10	9.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.9	0	1.5	1

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	59	88	1	0	14	154	94	0	5	12	1	0	99	16	90
Future Vol, veh/h	0	59	88	1	0	14	154	94	0	5	12	1	0	99	16	90
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	95	1	0	15	166	101	0	5	13	1	0	106	17	97
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	10.2	10.4	8.6	10
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	28%	40%	0%	5%	48%
Vol Thru, %	67%	60%	0%	59%	8%
Vol Right, %	6%	0%	100%	36%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	147	1	262	205
LT Vol	5	59	0	14	99
Through Vol	12	88	0	154	16
RT Vol	1	0	1	94	90
Lane Flow Rate	19	158	1	282	220
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.029	0.245	0.001	0.364	0.298
Departure Headway (Hd)	5.348	5.591	4.682	4.648	4.863
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	663	639	758	769	734
Service Time	3.436	3.36	2.45	2.708	2.923
HCM Lane V/C Ratio	0.029	0.247	0.001	0.367	0.3
HCM Control Delay	8.6	10.2	7.5	10.4	10
HCM Lane LOS	A	B	A	B	A
HCM 95th-tile Q	0.1	1	0	1.7	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	88	1	14	154	94	5	12	1	99	16	90
Future Volume (veh/h)	59	88	1	14	154	94	5	12	1	99	16	90
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	63	95	1	15	166	101	5	13	1	106	17	97
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	380	298	66	218	127	318	796	58	535	104	440
Arrive On Green	0.00	0.20	0.20	0.20	0.20	0.20	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	0	1863	1458	42	1071	621	378	1207	88	688	158	667
Grp Volume(v), veh/h	0	95	1	282	0	0	19	0	0	220	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1734	0	0	1672	0	0	1514	0	0
Q Serve(g_s), s	0.0	2.8	0.0	3.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.8	0.0	10.1	0.0	0.0	0.2	0.0	0.0	3.5	0.0	0.0
Prop In Lane	0.00		1.00	0.05		0.36	0.26		0.05	0.48		0.44
Lane Grp Cap(c), veh/h	0	380	298	411	0	0	1172	0	0	1079	0	0
V/C Ratio(X)	0.00	0.25	0.00	0.69	0.00	0.00	0.02	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	0	1059	829	1036	0	0	1172	0	0	1079	0	0
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)	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.0	20.9	24.9	0.0	0.0	3.9	0.0	0.0	4.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	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	0.0	1.5	0.0	5.1	0.0	0.0	0.1	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	0.0	22.4	20.9	26.9	0.0	0.0	3.9	0.0	0.0	4.8	0.0	0.0
LnGrp LOS		C	C	C			A			A		
Approach Vol, veh/h		96			282			19			220	
Approach Delay, s/veh		22.3			26.9			3.9			4.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		48.0		18.0		48.0	0.0	18.0
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		43.5		37.5		43.5	4.0	37.5
Max Q Clear Time (g_c+I1), s		2.2		4.8		5.5	0.0	12.1
Green Ext Time (p_c), s		0.9		1.4		0.9	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	66	97	1	0	16	175	91	0	6	15	1	0	92	20	111
Future Vol, veh/h	0	66	97	1	0	16	175	91	0	6	15	1	0	92	20	111
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	71	104	1	0	17	188	98	0	6	16	1	0	99	22	119
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	10.7	11	8.8	10.4
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	27%	40%	0%	6%	41%
Vol Thru, %	68%	60%	0%	62%	9%
Vol Right, %	5%	0%	100%	32%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	163	1	282	223
LT Vol	6	66	0	16	92
Through Vol	15	97	0	175	20
RT Vol	1	0	1	91	111
Lane Flow Rate	24	175	1	303	240
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.037	0.277	0.001	0.401	0.328
Departure Headway (Hd)	5.613	5.687	4.776	4.763	4.927
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	642	626	740	749	724
Service Time	3.613	3.474	2.562	2.84	3.004
HCM Lane V/C Ratio	0.037	0.28	0.001	0.405	0.331
HCM Control Delay	8.8	10.7	7.6	11	10.4
HCM Lane LOS	A	B	A	B	B
HCM 95th-tile Q	0.1	1.1	0	1.9	1.4

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	66	98	1	0	16	176	105	0	6	15	1	0	116	20	111
Future Vol, veh/h	0	66	98	1	0	16	176	105	0	6	15	1	0	116	20	111
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	71	105	1	0	17	189	113	0	6	16	1	0	125	22	119
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	10.9	11.5	9	11.1
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	27%	40%	0%	5%	47%
Vol Thru, %	68%	60%	0%	59%	8%
Vol Right, %	5%	0%	100%	35%	45%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	164	1	297	247
LT Vol	6	66	0	16	116
Through Vol	15	98	0	176	20
RT Vol	1	0	1	105	111
Lane Flow Rate	24	176	1	319	266
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.038	0.284	0.001	0.428	0.37
Departure Headway (Hd)	5.734	5.893	4.981	4.828	5.017
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	628	614	723	738	709
Service Time	3.734	3.593	2.681	2.917	3.106
HCM Lane V/C Ratio	0.038	0.287	0.001	0.432	0.375
HCM Control Delay	9	10.9	7.7	11.5	11.1
HCM Lane LOS	A	B	A	B	B
HCM 95th-tile Q	0.1	1.2	0	2.2	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	98	1	16	176	105	6	15	1	116	20	111
Future Volume (veh/h)	66	98	1	16	176	105	6	15	1	116	20	111
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	71	105	1	17	189	113	6	16	1	125	22	119
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	420	329	66	243	138	305	783	46	508	107	435
Arrive On Green	0.00	0.23	0.23	0.23	0.23	0.23	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	0	1863	1458	43	1077	614	371	1221	72	670	167	678
Grp Volume(v), veh/h	0	105	1	319	0	0	23	0	0	266	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1735	0	0	1665	0	0	1515	0	0
Q Serve(g_s), s	0.0	3.1	0.0	3.7	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.1	0.0	11.8	0.0	0.0	0.3	0.0	0.0	4.8	0.0	0.0
Prop In Lane	0.00		1.00	0.05		0.35	0.26		0.04	0.47		0.45
Lane Grp Cap(c), veh/h	0	420	329	447	0	0	1135	0	0	1051	0	0
V/C Ratio(X)	0.00	0.25	0.00	0.71	0.00	0.00	0.02	0.00	0.00	0.25	0.00	0.00
Avail Cap(c_a), veh/h	0	1031	807	1009	0	0	1135	0	0	1051	0	0
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)	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	21.5	20.3	24.9	0.0	0.0	4.4	0.0	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	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	0.0	1.6	0.0	5.9	0.0	0.0	0.2	0.0	0.0	2.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	21.9	20.4	27.0	0.0	0.0	4.4	0.0	0.0	5.8	0.0	0.0
LnGrp LOS		C	C	C			A			A		
Approach Vol, veh/h		106			319			23			266	
Approach Delay, s/veh		21.8			27.0			4.4			5.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		48.0		19.8		48.0	0.0	19.8
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		43.5		37.5		43.5	4.0	37.5
Max Q Clear Time (g_c+I1), s		2.3		5.1		6.8	0.0	13.8
Green Ext Time (p_c), s		1.1		1.6		1.1	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	86	127	1	0	22	238	124	0	10	24	2	0	149	32	179
Future Vol, veh/h	0	86	127	1	0	22	238	124	0	10	24	2	0	149	32	179
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	92	137	1	0	24	256	133	0	11	26	2	0	160	34	192
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.2	18.1	10.3	17.1
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	28%	40%	0%	6%	41%
Vol Thru, %	67%	60%	0%	62%	9%
Vol Right, %	6%	0%	100%	32%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	213	1	384	360
LT Vol	10	86	0	22	149
Through Vol	24	127	0	238	32
RT Vol	2	0	1	124	179
Lane Flow Rate	39	229	1	413	387
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.073	0.422	0.002	0.64	0.606
Departure Headway (Hd)	6.793	6.632	5.713	5.581	5.638
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	531	538	621	644	635
Service Time	4.793	4.418	3.498	3.654	3.713
HCM Lane V/C Ratio	0.073	0.426	0.002	0.641	0.609
HCM Control Delay	10.3	14.2	8.5	18.1	17.1
HCM Lane LOS	B	B	A	C	C
HCM 95th-tile Q	0.2	2.1	0	4.6	4.1

Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	86	128	1	0	22	239	138	0	10	24	2	0	173	32	179
Future Vol, veh/h	0	86	128	1	0	22	239	138	0	10	24	2	0	173	32	179
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	92	138	1	0	24	257	148	0	11	26	2	0	186	34	192
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.8	20	10.6	19.4
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	28%	40%	0%	6%	45%
Vol Thru, %	67%	60%	0%	60%	8%
Vol Right, %	6%	0%	100%	35%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	214	1	399	384
LT Vol	10	86	0	22	173
Through Vol	24	128	0	239	32
RT Vol	2	0	1	138	179
Lane Flow Rate	39	230	1	429	413
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.075	0.434	0.002	0.678	0.659
Departure Headway (Hd)	6.988	6.89	5.97	5.687	5.743
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	516	527	603	631	623
Service Time	4.988	4.59	3.67	3.772	3.827
HCM Lane V/C Ratio	0.076	0.436	0.002	0.68	0.663
HCM Control Delay	10.6	14.8	8.7	20	19.4
HCM Lane LOS	B	B	A	C	C
HCM 95th-tile Q	0.2	2.2	0	5.2	4.9

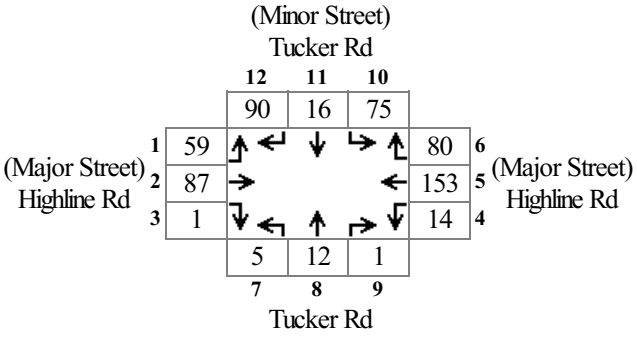
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	128	1	22	239	138	10	24	2	173	32	179
Future Volume (veh/h)	86	128	1	22	239	138	10	24	2	173	32	179
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	92	138	1	24	257	148	11	26	2	186	34	192
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	536	420	66	312	172	296	673	49	448	99	416
Arrive On Green	0.00	0.29	0.29	0.29	0.29	0.29	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	0	1863	1458	50	1085	598	396	1141	83	639	168	705
Grp Volume(v), veh/h	0	138	1	429	0	0	39	0	0	412	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1733	0	0	1620	0	0	1512	0	0
Q Serve(g_s), s	0.0	4.2	0.0	7.0	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.2	0.0	17.2	0.0	0.0	0.7	0.0	0.0	10.9	0.0	0.0
Prop In Lane	0.00		1.00	0.06		0.34	0.28		0.05	0.45		0.47
Lane Grp Cap(c), veh/h	0	536	420	550	0	0	1019	0	0	963	0	0
V/C Ratio(X)	0.00	0.26	0.00	0.78	0.00	0.00	0.04	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	0	948	742	928	0	0	1019	0	0	963	0	0
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)	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.2	18.7	24.8	0.0	0.0	6.3	0.0	0.0	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	2.4	0.0	0.0	0.1	0.0	0.0	1.4	0.0	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	0.0	2.2	0.0	8.6	0.0	0.0	0.3	0.0	0.0	4.9	0.0	0.0
LnGrp Delay(d),s/veh	0.0	20.4	18.7	27.2	0.0	0.0	6.4	0.0	0.0	9.7	0.0	0.0
LnGrp LOS		C	B	C			A			A		
Approach Vol, veh/h		139			429			39			412	
Approach Delay, s/veh		20.4			27.2			6.4			9.7	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		48.0		25.7		48.0	0.0	25.7
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		43.5		37.5		43.5	4.0	37.5
Max Q Clear Time (g_c+I1), s		2.7		6.2		12.9	0.0	19.2
Green Ext Time (p_c), s		1.8		2.2		1.8	0.0	2.0

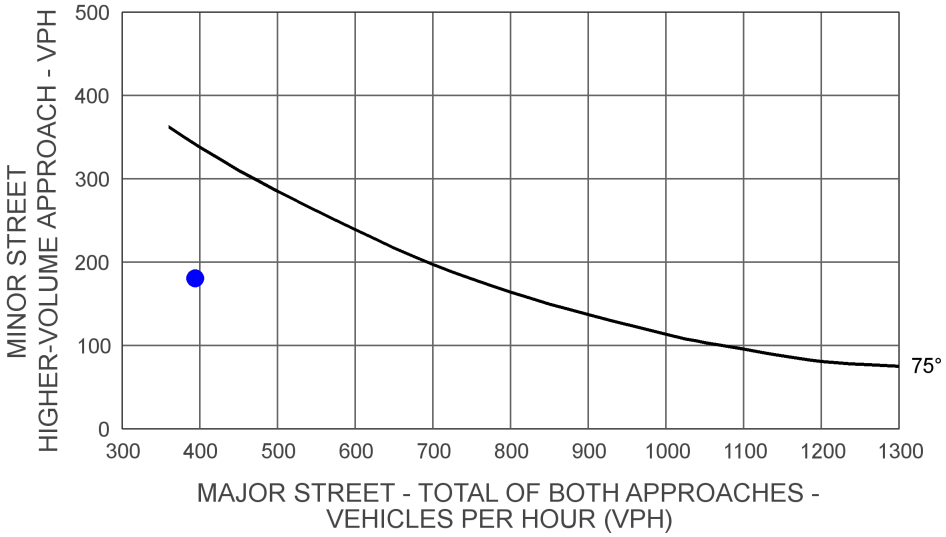
Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 4

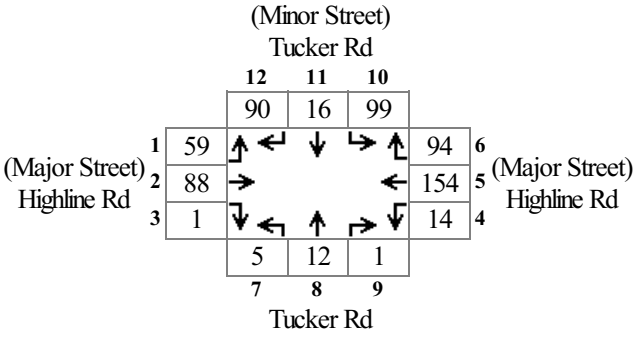


Major Total: 394
Minor High Volume: 181



Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 4



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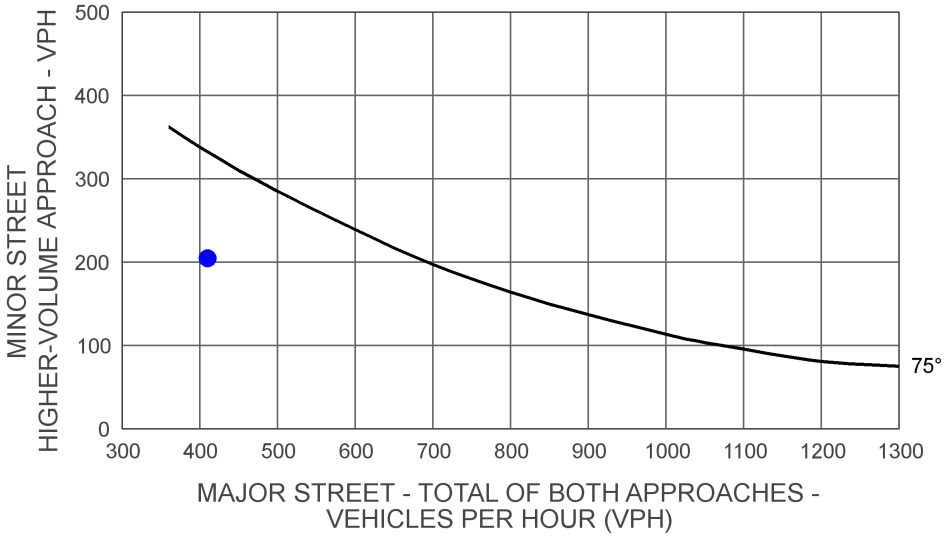
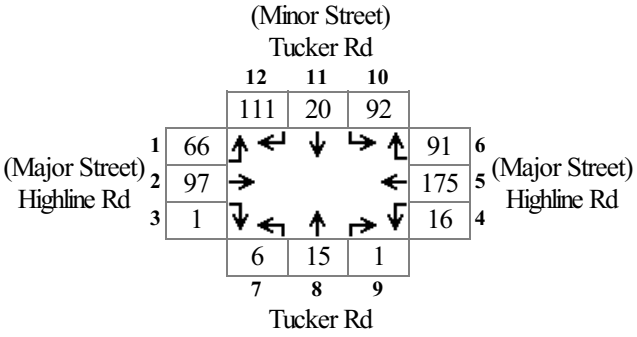
Minor High Volume: 205

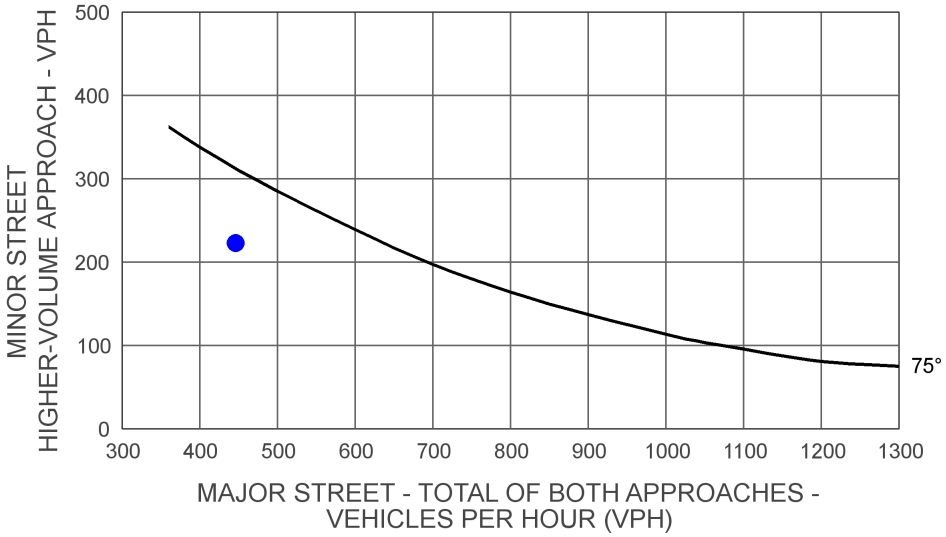


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 4

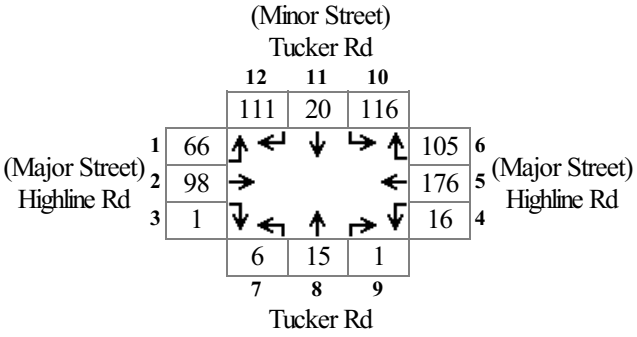


Major Total: 446
Minor High Volume: 223

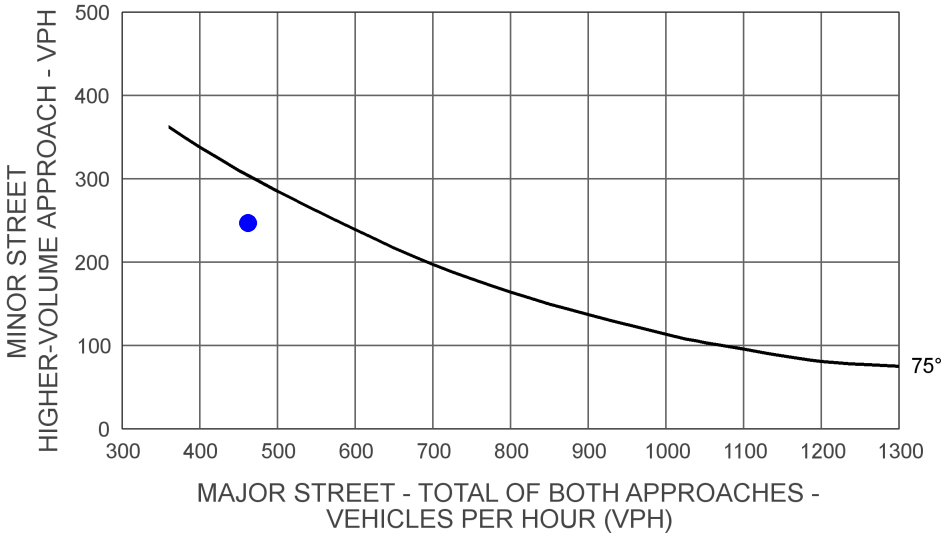


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 4

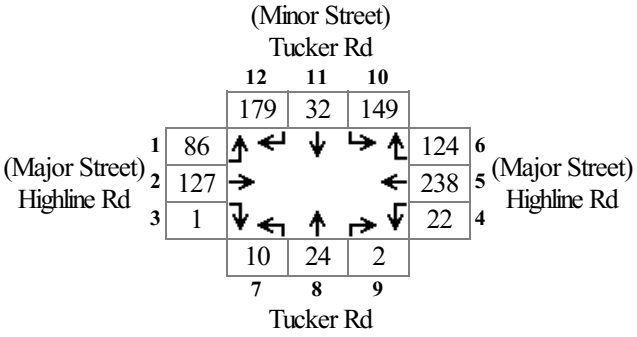


Major Total: 462
Minor High Volume: 247

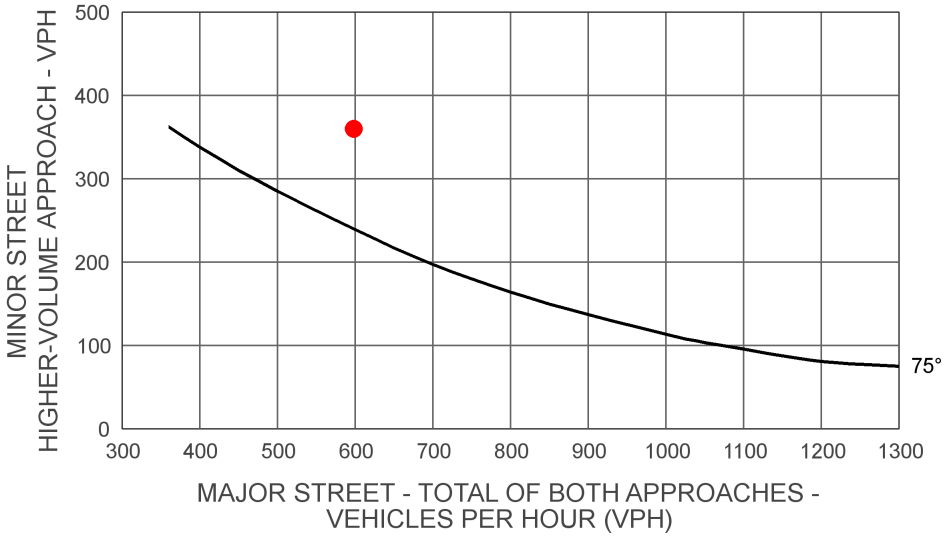


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 4

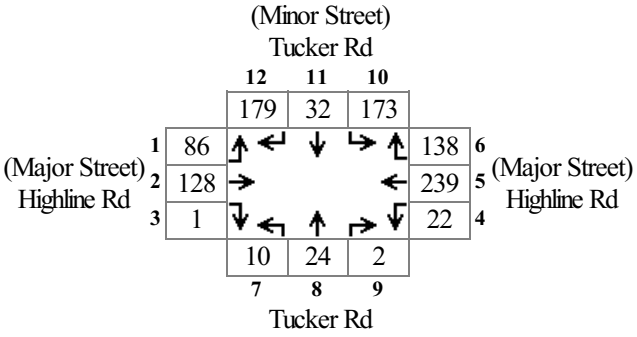


Major Total: 598
Minor High Volume: 360

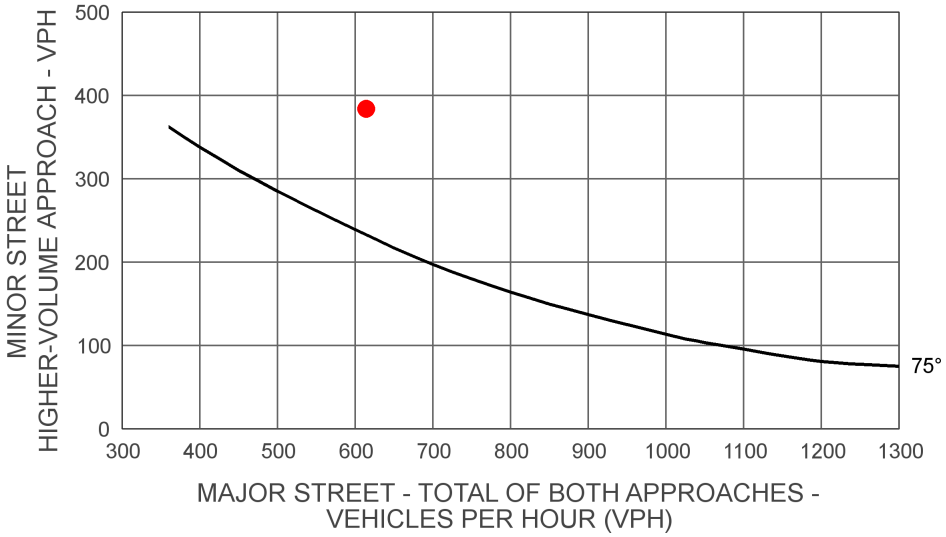


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 4



Major Total: 614
Minor High Volume: 384



Intersection	
Intersection Delay, s/veh	33.6
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	97	275	1	0	3	94	38	0	0	7	1	0	68	8	32
Future Vol, veh/h	0	97	275	1	0	3	94	38	0	0	7	1	0	68	8	32
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	162	458	2	0	5	157	63	0	0	12	2	0	113	13	53
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	48.5	11.2	9.9	12
HCM LOS	E	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	63%
Vol Thru, %	88%	74%	0%	70%	7%
Vol Right, %	12%	0%	100%	28%	30%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	372	1	135	108
LT Vol	0	97	0	3	68
Through Vol	7	275	0	94	8
RT Vol	1	0	1	38	32
Lane Flow Rate	13	620	2	225	180
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.025	0.957	0.002	0.339	0.309
Departure Headway (Hd)	6.621	5.558	4.72	5.417	6.174
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	538	651	758	664	581
Service Time	4.691	3.285	2.447	3.458	4.224
HCM Lane V/C Ratio	0.024	0.952	0.003	0.339	0.31
HCM Control Delay	9.9	48.6	7.5	11.2	12
HCM Lane LOS	A	E	A	B	B
HCM 95th-tile Q	0.1	13.6	0	1.5	1.3

Intersection	
Intersection Delay, s/veh	35.4
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	97	275	1	0	3	96	60	0	0	7	1	0	75	8	32
Future Vol, veh/h	0	97	275	1	0	3	96	60	0	0	7	1	0	75	8	32
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	162	458	2	0	5	160	100	0	0	12	2	0	125	13	53
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	53	12.1	10.1	12.5
HCM LOS	F	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	65%
Vol Thru, %	88%	74%	0%	60%	7%
Vol Right, %	12%	0%	100%	38%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	372	1	159	115
LT Vol	0	97	0	3	75
Through Vol	7	275	0	96	8
RT Vol	1	0	1	60	32
Lane Flow Rate	13	620	2	265	192
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.025	0.975	0.002	0.4	0.335
Departure Headway (Hd)	6.797	5.66	4.821	5.433	6.296
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	523	645	742	660	569
Service Time	4.879	3.392	2.553	3.48	4.353
HCM Lane V/C Ratio	0.025	0.961	0.003	0.402	0.337
HCM Control Delay	10.1	53.1	7.6	12.1	12.5
HCM Lane LOS	B	F	A	B	B
HCM 95th-tile Q	0.1	14.3	0	1.9	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	275	1	3	96	60	0	7	1	75	8	32
Future Volume (veh/h)	97	275	1	3	96	60	0	7	1	75	8	32
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	162	458	2	5	160	100	0	12	2	125	13	53
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	534	418	39	278	169	0	968	161	647	75	254
Arrive On Green	0.00	0.29	0.29	0.29	0.29	0.29	0.00	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	0	1863	1458	6	969	591	0	1557	260	944	120	409
Grp Volume(v), veh/h	0	458	2	265	0	0	0	0	14	191	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1566	0	0	0	0	1817	1473	0	0
Q Serve(g_s), s	0.0	22.8	0.1	0.5	0.0	0.0	0.0	0.0	0.3	4.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	22.8	0.1	23.3	0.0	0.0	0.0	0.0	0.3	5.3	0.0	0.0
Prop In Lane	0.00		1.00	0.02		0.38	0.00		0.14	0.65		0.28
Lane Grp Cap(c), veh/h	0	534	418	486	0	0	0	0	1129	976	0	0
V/C Ratio(X)	0.00	0.86	0.00	0.54	0.00	0.00	0.00	0.00	0.01	0.20	0.00	0.00
Avail Cap(c_a), veh/h	0	1150	900	1054	0	0	0	0	1129	976	0	0
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)	0.00	1.00	1.00	0.89	0.00	0.00	0.00	0.00	1.00	0.99	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.1	25.0	29.4	0.0	0.0	0.0	0.0	7.1	8.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.1	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	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	0.0	12.3	0.0	6.2	0.0	0.0	0.0	0.0	0.2	2.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	37.2	25.0	30.3	0.0	0.0	0.0	0.0	7.1	8.4	0.0	0.0
LnGrp LOS		D	C	C					A	A		
Approach Vol, veh/h		460			265			14			191	
Approach Delay, s/veh		37.1			30.3			7.1			8.4	
Approach LOS		D			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		65.4		32.6		65.4	0.0	32.6
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.5		60.5		20.5	4.0	60.5
Max Q Clear Time (g_c+I1), s		2.3		24.8		7.3	0.0	25.3
Green Ext Time (p_c), s		0.6		2.8		0.5	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	40.1
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	109	308	1	0	3	107	43	0	0	9	1	0	84	10	39
Future Vol, veh/h	0	109	308	1	0	3	107	43	0	0	9	1	0	84	10	39
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	182	513	2	0	5	178	72	0	0	15	2	0	140	17	65
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	59.6	12.3	10.1	13.2
HCM LOS	F	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	63%
Vol Thru, %	90%	74%	0%	70%	8%
Vol Right, %	10%	0%	100%	28%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	417	1	153	133
LT Vol	0	109	0	3	84
Through Vol	9	308	0	107	10
RT Vol	1	0	1	43	39
Lane Flow Rate	17	695	2	255	222
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.032	1	0.002	0.398	0.383
Departure Headway (Hd)	6.902	5.804	4.964	5.623	6.224
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	521	632	724	643	574
Service Time	4.916	3.513	2.672	3.626	4.303
HCM Lane V/C Ratio	0.033	1.1	0.003	0.397	0.387
HCM Control Delay	10.1	59.7	7.7	12.3	13.2
HCM Lane LOS	B	F	A	B	B
HCM 95th-tile Q	0.1	15.2	0	1.9	1.8

Intersection	
Intersection Delay, s/veh	39.7
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	109	308	1	0	3	109	65	0	0	9	1	0	91	10	39
Future Vol, veh/h	0	109	308	1	0	3	109	65	0	0	9	1	0	91	10	39
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	182	513	2	0	5	182	108	0	0	15	2	0	152	17	65
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	60.2	13.4	10.3	13.7
HCM LOS	F	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	65%
Vol Thru, %	90%	74%	0%	62%	7%
Vol Right, %	10%	0%	100%	37%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	417	1	177	140
LT Vol	0	109	0	3	91
Through Vol	9	308	0	109	10
RT Vol	1	0	1	65	39
Lane Flow Rate	17	695	2	295	233
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.033	1	0.002	0.462	0.408
Departure Headway (Hd)	7.055	5.915	5.074	5.632	6.302
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	509	619	708	643	567
Service Time	5.075	3.627	2.785	3.635	4.398
HCM Lane V/C Ratio	0.033	1.123	0.003	0.459	0.411
HCM Control Delay	10.3	60.3	7.8	13.4	13.7
HCM Lane LOS	B	F	A	B	B
HCM 95th-tile Q	0.1	15.1	0	2.4	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	308	1	3	109	65	0	9	1	91	10	39
Future Volume (veh/h)	109	308	1	3	109	65	0	9	1	91	10	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	182	513	2	5	182	108	0	15	2	152	17	65
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	593	464	39	317	184	0	950	127	612	76	241
Arrive On Green	0.00	0.32	0.32	0.32	0.32	0.32	0.00	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	0	1863	1458	5	994	577	0	1610	215	935	129	409
Grp Volume(v), veh/h	0	513	2	295	0	0	0	0	17	234	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1577	0	0	0	0	1825	1473	0	0
Q Serve(g_s), s	0.0	25.4	0.1	0.6	0.0	0.0	0.0	0.0	0.4	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	25.4	0.1	26.0	0.0	0.0	0.0	0.0	0.4	7.4	0.0	0.0
Prop In Lane	0.00		1.00	0.02		0.37	0.00		0.12	0.65		0.28
Lane Grp Cap(c), veh/h	0	593	464	540	0	0	0	0	1076	929	0	0
V/C Ratio(X)	0.00	0.87	0.00	0.55	0.00	0.00	0.00	0.00	0.02	0.25	0.00	0.00
Avail Cap(c_a), veh/h	0	1150	900	1054	0	0	0	0	1076	929	0	0
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)	0.00	1.00	1.00	0.82	0.00	0.00	0.00	0.00	1.00	0.96	0.00	0.00
Uniform Delay (d), s/veh	0.0	31.4	22.8	27.4	0.0	0.0	0.0	0.0	8.3	9.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.9	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.6	0.0	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	0.0	13.6	0.0	6.7	0.0	0.0	0.0	0.0	0.2	3.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	35.4	22.8	28.2	0.0	0.0	0.0	0.0	8.4	10.3	0.0	0.0
LnGrp LOS		D	C	C					A	B		
Approach Vol, veh/h		515			295			17			234	
Approach Delay, s/veh		35.3			28.2			8.4			10.3	
Approach LOS		D			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		62.3		35.7		62.3	0.0	35.7
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.5		60.5		20.5	4.0	60.5
Max Q Clear Time (g_c+I1), s		2.4		27.4		9.4	0.0	28.0
Green Ext Time (p_c), s		0.8		3.2		0.6	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	44.3
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	142	401	1	0	5	146	59	0	0	14	2	0	135	16	64
Future Vol, veh/h	0	142	401	1	0	5	146	59	0	0	14	2	0	135	16	64
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	237	668	2	0	8	243	98	0	0	23	3	0	225	27	107
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	64.2	18.8	11.3	21.4
HCM LOS	F	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	63%
Vol Thru, %	88%	74%	0%	70%	7%
Vol Right, %	12%	0%	100%	28%	30%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	543	1	210	215
LT Vol	0	142	0	5	135
Through Vol	14	401	0	146	16
RT Vol	2	0	1	59	64
Lane Flow Rate	27	905	2	350	358
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.058	1	0.003	0.613	0.657
Departure Headway (Hd)	7.791	6.66	5.812	6.3	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	459	552	614	574	548
Service Time	5.847	4.408	3.561	4.333	4.625
HCM Lane V/C Ratio	0.059	1.639	0.003	0.61	0.653
HCM Control Delay	11.3	64.3	8.6	18.8	21.4
HCM Lane LOS	B	F	A	C	C
HCM 95th-tile Q	0.2	14.2	0	4.1	4.8

Intersection	
Intersection Delay, s/veh	45.2
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	142	401	1	0	5	148	81	0	0	14	2	0	142	16	64
Future Vol, veh/h	0	142	401	1	0	5	148	81	0	0	14	2	0	142	16	64
Peak Hour Factor	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60	0.92	0.60	0.60	0.60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	237	668	2	0	8	247	135	0	0	23	3	0	237	27	107
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	65.1	22.1	11.6	23.3
HCM LOS	F	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	26%	0%	2%	64%
Vol Thru, %	88%	74%	0%	63%	7%
Vol Right, %	12%	0%	100%	35%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	543	1	234	222
LT Vol	0	142	0	5	142
Through Vol	14	401	0	148	16
RT Vol	2	0	1	81	64
Lane Flow Rate	27	905	2	390	370
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.059	1	0.003	0.686	0.689
Departure Headway (Hd)	8.004	6.809	5.961	6.333	6.703
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	446	534	598	569	540
Service Time	6.073	4.567	3.718	4.371	4.731
HCM Lane V/C Ratio	0.061	1.695	0.003	0.685	0.685
HCM Control Delay	11.6	65.2	8.7	22.1	23.3
HCM Lane LOS	B	F	A	C	C
HCM 95th-tile Q	0.2	14	0	5.3	5.3

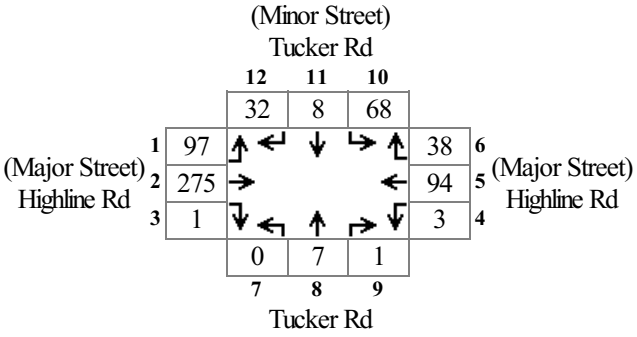
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	401	1	5	148	81	0	14	2	142	16	64
Future Volume (veh/h)	142	401	1	5	148	81	0	14	2	142	16	64
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1716	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	237	668	2	8	247	135	0	23	3	237	27	107
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	766	600	40	404	216	0	803	105	514	65	210
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.41	0.00	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	0	1863	1458	7	984	525	0	1615	211	914	131	423
Grp Volume(v), veh/h	0	668	2	390	0	0	0	0	26	371	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1458	1515	0	0	0	0	1826	1468	0	0
Q Serve(g_s), s	0.0	32.3	0.1	1.6	0.0	0.0	0.0	0.0	0.7	15.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	32.3	0.1	33.8	0.0	0.0	0.0	0.0	0.7	16.5	0.0	0.0
Prop In Lane	0.00		1.00	0.02		0.35	0.00		0.12	0.64		0.29
Lane Grp Cap(c), veh/h	0	766	600	660	0	0	0	0	907	790	0	0
V/C Ratio(X)	0.00	0.87	0.00	0.59	0.00	0.00	0.00	0.00	0.03	0.47	0.00	0.00
Avail Cap(c_a), veh/h	0	1150	900	1013	0	0	0	0	907	790	0	0
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)	0.00	1.00	1.00	0.74	0.00	0.00	0.00	0.00	1.00	0.93	0.00	0.00
Uniform Delay (d), s/veh	0.0	26.5	17.0	22.0	0.0	0.0	0.0	0.0	12.6	16.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.1	0.0	0.6	0.0	0.0	0.0	0.0	0.1	1.9	0.0	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	0.0	17.6	0.0	8.1	0.0	0.0	0.0	0.0	0.4	7.1	0.0	0.0
LnGrp Delay(d),s/veh	0.0	31.6	17.0	22.7	0.0	0.0	0.0	0.0	12.6	18.3	0.0	0.0
LnGrp LOS		C	B	C					B	B		
Approach Vol, veh/h		670			390			26			371	
Approach Delay, s/veh		31.5			22.7			12.6			18.3	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		53.2		44.8		53.2	0.0	44.8
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.5		60.5		20.5	4.0	60.5
Max Q Clear Time (g_c+I1), s		2.7		34.3		18.5	0.0	35.8
Green Ext Time (p_c), s		1.4		4.5		0.3	0.0	4.5

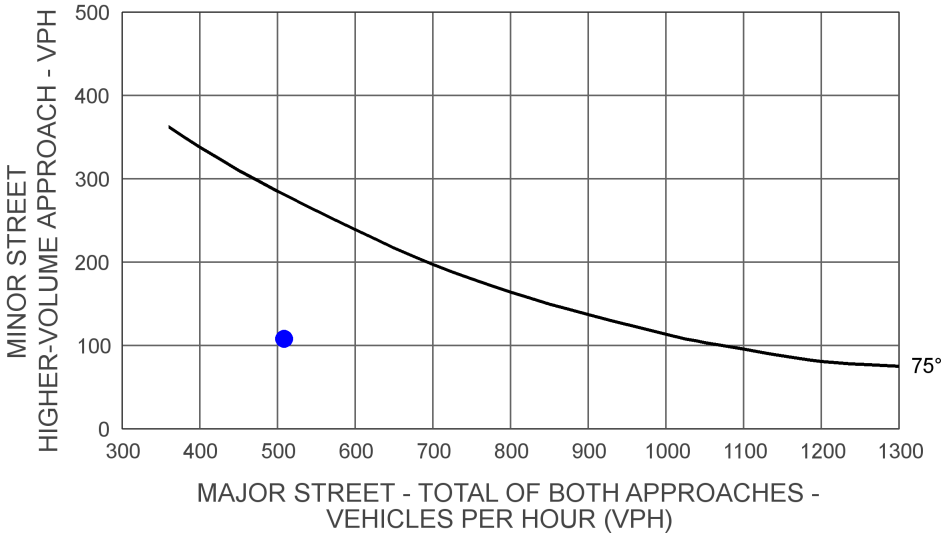
Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 4

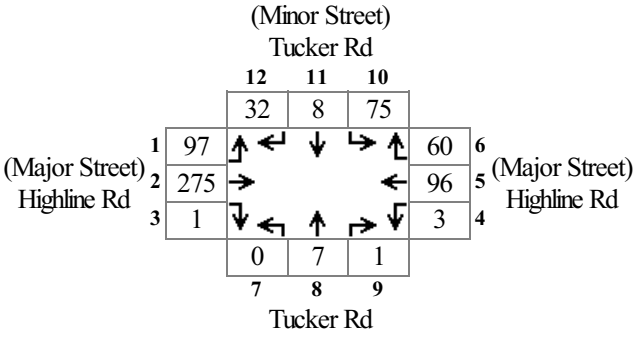


Major Total: 508
Minor High Volume: 108

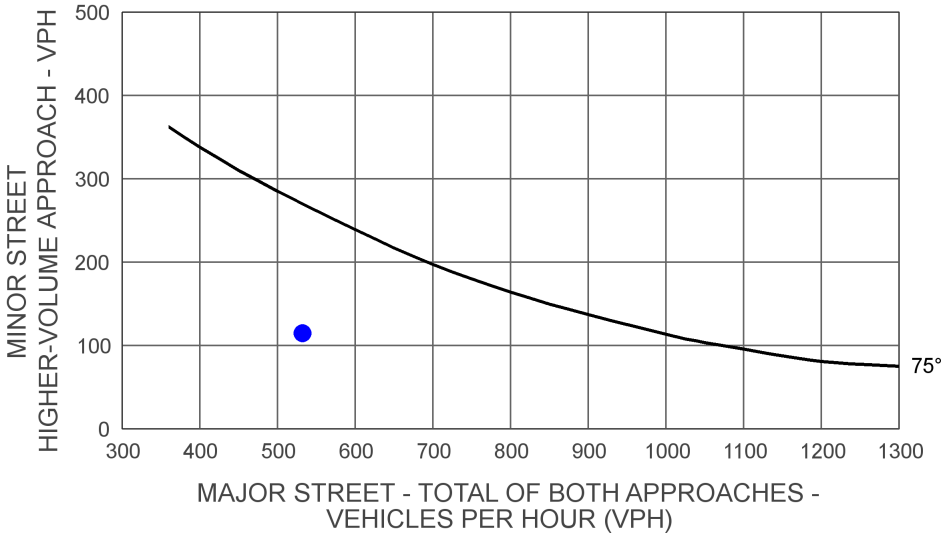


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 4

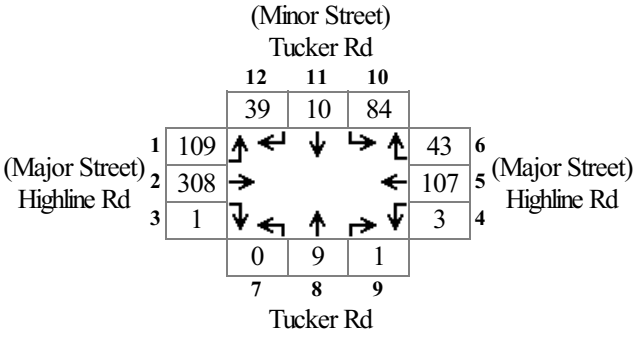


Major Total: 532
Minor High Volume: 115

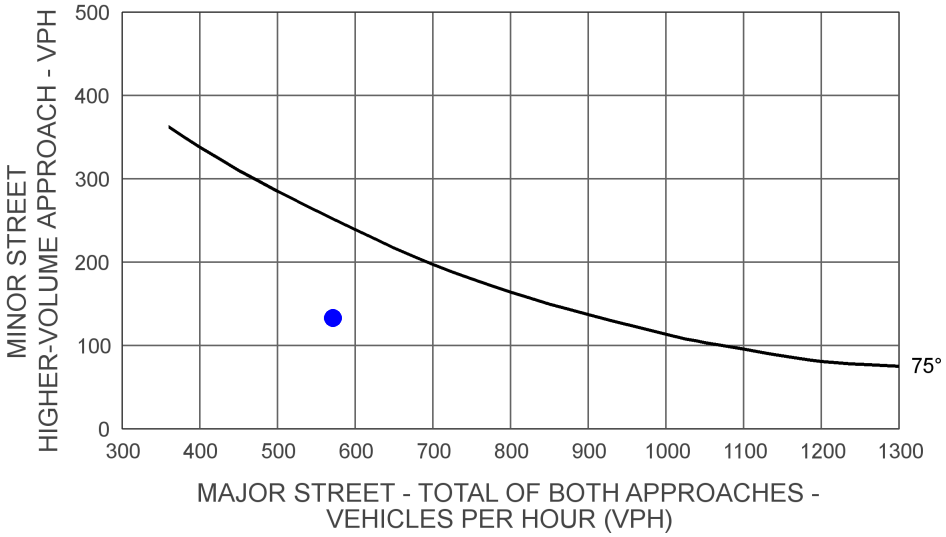


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 4

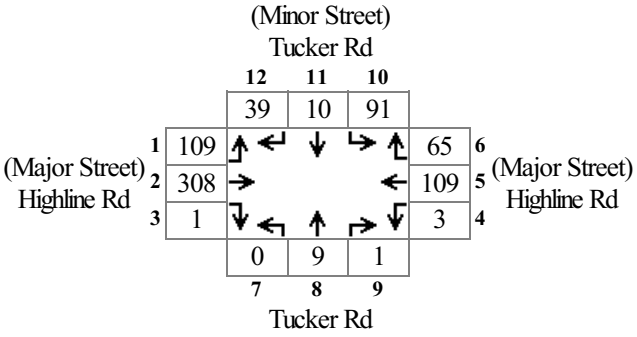


Major Total: 571
Minor High Volume: 133

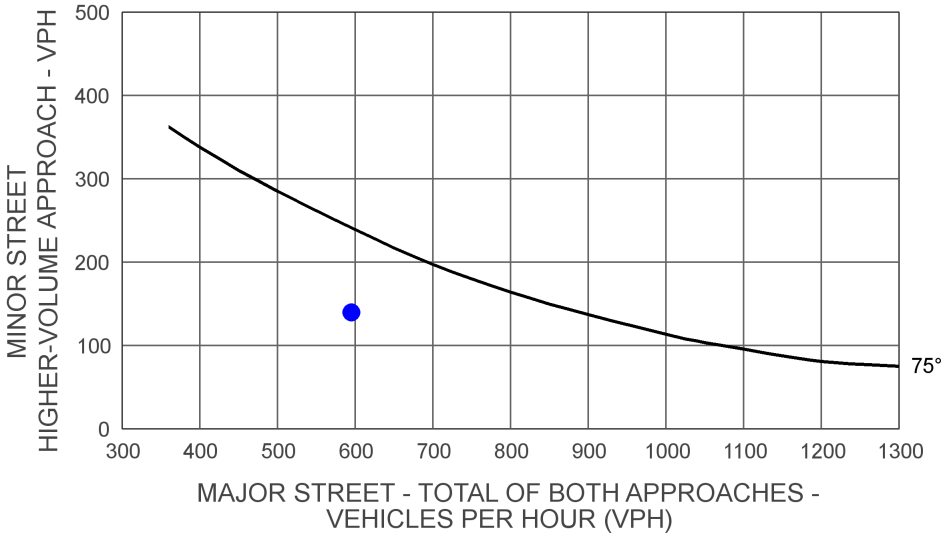


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 4

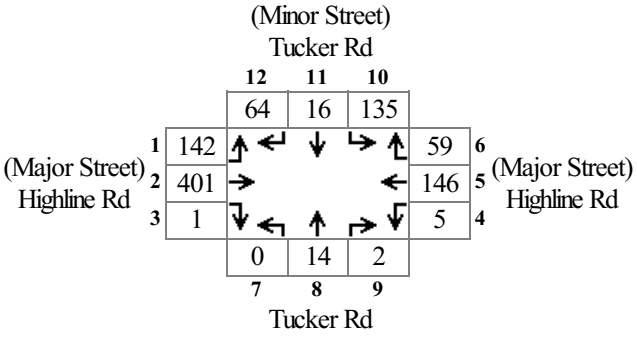


Major Total: 595
Minor High Volume: 140

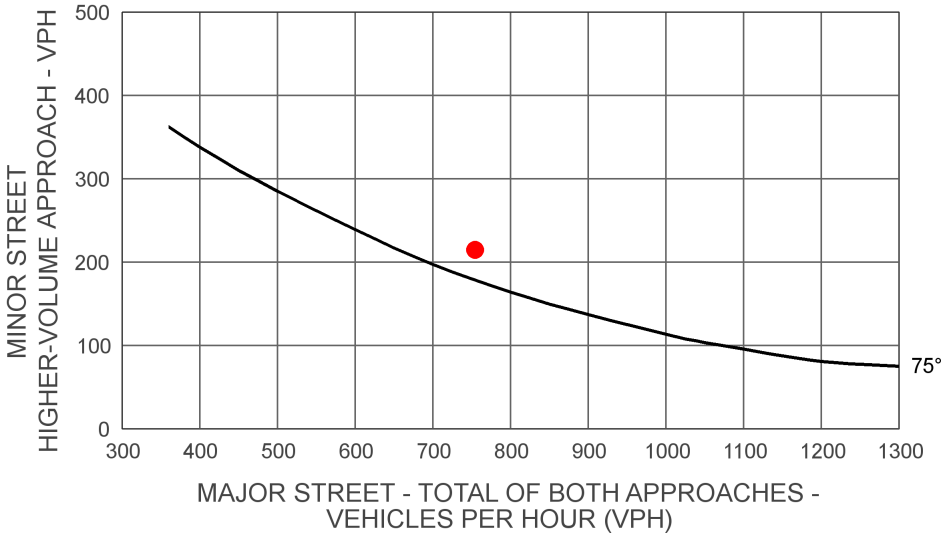


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 4

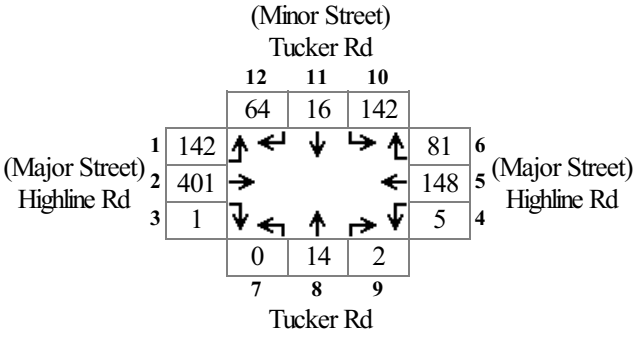


Major Total: 754
Minor High Volume: 215

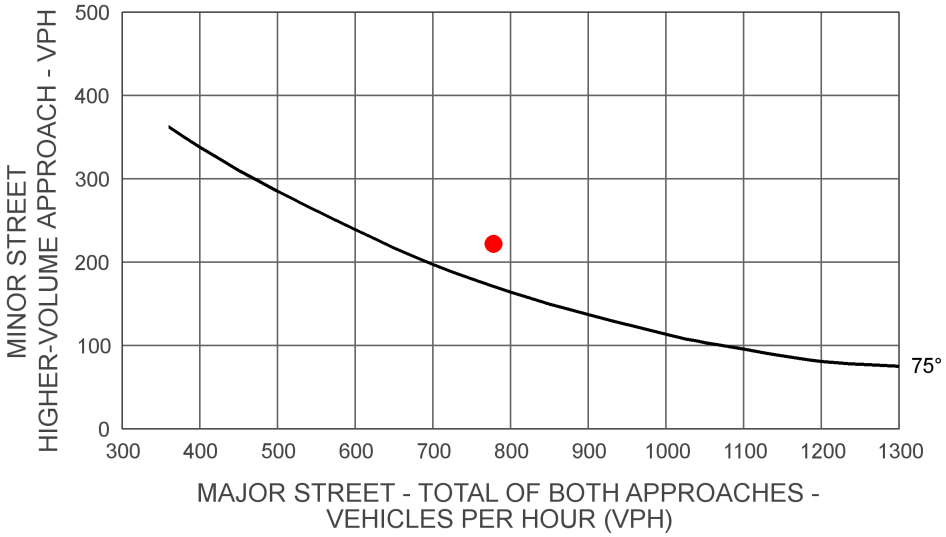


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 4



Major Total: 778
Minor High Volume: 222



Intersection 5
Curry St & Highline Rd

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	42	113	3	6	187	90	1	3	2	20	9	61
Future Vol, veh/h	42	113	3	6	187	90	1	3	2	20	9	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	122	3	6	201	97	1	3	2	22	10	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	125	0	0	480	524	123	478	477	249
Stage 1	-	-	-	-	-	-	213	213	-	262	262	-
Stage 2	-	-	-	-	-	-	267	311	-	216	215	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1263	-	-	1462	-	-	496	458	928	498	487	790
Stage 1	-	-	-	-	-	-	789	726	-	743	691	-
Stage 2	-	-	-	-	-	-	738	658	-	786	725	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	1462	-	-	434	440	928	479	468	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	434	440	-	479	468	-
Stage 1	-	-	-	-	-	-	761	700	-	717	688	-
Stage 2	-	-	-	-	-	-	664	655	-	753	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.2	11.9	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	532	1263	-	-	1462	-	-	476	790
HCM Lane V/C Ratio	0.012	0.036	-	-	0.004	-	-	0.066	0.083
HCM Control Delay (s)	11.9	8	-	-	7.5	-	-	13.1	10
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2	0.3

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	52	124	3	6	206	90	1	3	2	20	9	79
Future Vol, veh/h	52	124	3	6	206	90	1	3	2	20	9	79
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	133	3	6	222	97	1	3	2	22	10	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	318	0	0	137	0	0	535	578	135	532	531	270
Stage 1	-	-	-	-	-	-	247	247	-	283	283	-
Stage 2	-	-	-	-	-	-	288	331	-	249	248	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1242	-	-	1447	-	-	456	427	914	458	454	769
Stage 1	-	-	-	-	-	-	757	702	-	724	677	-
Stage 2	-	-	-	-	-	-	720	645	-	755	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1242	-	-	1447	-	-	384	406	914	437	432	769
Mov Cap-2 Maneuver	-	-	-	-	-	-	384	406	-	437	432	-
Stage 1	-	-	-	-	-	-	723	670	-	691	674	-
Stage 2	-	-	-	-	-	-	629	642	-	716	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0.1	12.4	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	493	1242	-	-	1447	-	-	435	769
HCM Lane V/C Ratio	0.013	0.045	-	-	0.004	-	-	0.072	0.11
HCM Control Delay (s)	12.4	8	-	-	7.5	-	-	13.9	10.3
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	124	3	6	206	90	1	3	2	20	9	79
Future Volume (veh/h)	52	124	3	6	206	90	1	3	2	20	9	79
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	56	133	3	6	222	97	1	3	2	22	10	85
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	561	13	11	329	144	0	126	84	36	518	405
Arrive On Green	0.05	0.31	0.31	0.01	0.27	0.27	0.00	0.12	0.12	0.02	0.28	0.28
Sat Flow, veh/h	1634	1815	41	1634	1230	538	0	1044	696	1634	1863	1458
Grp Volume(v), veh/h	56	0	136	6	0	319	0	0	5	22	10	85
Grp Sat Flow(s),veh/h/ln	1634	0	1856	1634	0	1768	0	0	1740	1634	1863	1458
Q Serve(g_s), s	1.1	0.0	1.8	0.1	0.0	5.4	0.0	0.0	0.1	0.4	0.1	1.5
Cycle Q Clear(g_c), s	1.1	0.0	1.8	0.1	0.0	5.4	0.0	0.0	0.1	0.4	0.1	1.5
Prop In Lane	1.00		0.02	1.00		0.30	0.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	79	0	574	11	0	472	0	0	209	36	518	405
V/C Ratio(X)	0.71	0.00	0.24	0.57	0.00	0.68	0.00	0.00	0.02	0.61	0.02	0.21
Avail Cap(c_a), veh/h	615	0	2675	202	0	2102	0	0	1047	418	1374	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	8.6	16.5	0.0	10.9	0.0	0.0	12.9	16.1	8.7	9.2
Incr Delay (d2), s/veh	10.8	0.0	0.2	39.8	0.0	1.7	0.0	0.0	0.0	15.4	0.0	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	0.7	0.0	0.9	0.2	0.0	2.8	0.0	0.0	0.0	0.4	0.1	0.6
LnGrp Delay(d),s/veh	26.4	0.0	8.8	56.2	0.0	12.6	0.0	0.0	12.9	31.5	8.7	9.5
LnGrp LOS	C		A	E		B			B	C	A	A
Approach Vol, veh/h		192			325			5			117	
Approach Delay, s/veh		13.9			13.4			12.9			13.5	
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	5.2	8.5	4.7	14.8	0.0	13.7	6.1	13.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	20.0	4.1	47.9	4.0	24.5	12.5	39.5
Max Q Clear Time (g_c+I1), s	2.4	2.1	2.1	3.8	0.0	3.5	3.1	7.4
Green Ext Time (p_c), s	0.0	0.3	0.0	1.7	0.0	0.3	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	70	129	3	7	213	147	1	3	2	48	10	81
Future Vol, veh/h	70	129	3	7	213	147	1	3	2	48	10	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	75	139	3	8	229	158	1	3	2	52	11	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	142	0	0	619	693	140	617	615	308
Stage 1	-	-	-	-	-	-	291	291	-	323	323	-
Stage 2	-	-	-	-	-	-	328	402	-	294	292	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1171	-	-	1441	-	-	401	367	908	402	407	732
Stage 1	-	-	-	-	-	-	717	672	-	689	650	-
Stage 2	-	-	-	-	-	-	685	600	-	714	671	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1171	-	-	1441	-	-	327	342	908	377	379	732
Mov Cap-2 Maneuver	-	-	-	-	-	-	327	342	-	377	379	-
Stage 1	-	-	-	-	-	-	671	629	-	645	646	-
Stage 2	-	-	-	-	-	-	590	597	-	663	628	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.1	13.5	13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	428	1171	-	-	1441	-	-	377	732
HCM Lane V/C Ratio	0.015	0.064	-	-	0.005	-	-	0.165	0.119
HCM Control Delay (s)	13.5	8.3	-	-	7.5	-	-	16.4	10.6
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.6	0.4

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	80	140	3	7	232	147	1	3	2	48	10	99
Future Vol, veh/h	80	140	3	7	232	147	1	3	2	48	10	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	151	3	8	249	158	1	3	2	52	11	106

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	408	0	0	154	0	0	673	747	152	671	670	328
Stage 1	-	-	-	-	-	-	324	324	-	344	344	-
Stage 2	-	-	-	-	-	-	349	423	-	327	326	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1151	-	-	1426	-	-	369	341	894	370	378	713
Stage 1	-	-	-	-	-	-	688	650	-	671	637	-
Stage 2	-	-	-	-	-	-	667	588	-	686	648	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1151	-	-	1426	-	-	288	314	894	344	348	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	314	-	344	348	-
Stage 1	-	-	-	-	-	-	637	601	-	621	633	-
Stage 2	-	-	-	-	-	-	555	585	-	630	600	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.1	14.3	13.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	393	1151	-	-	1426	-	-	345	713
HCM Lane V/C Ratio	0.016	0.075	-	-	0.005	-	-	0.181	0.149
HCM Control Delay (s)	14.3	8.4	-	-	7.5	-	-	17.7	10.9
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.7	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	140	3	7	232	147	1	3	2	48	10	99
Future Volume (veh/h)	80	140	3	7	232	147	1	3	2	48	10	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	86	151	3	8	249	158	1	3	2	52	11	106
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	676	13	14	336	213	0	109	73	73	497	389
Arrive On Green	0.06	0.37	0.37	0.01	0.32	0.32	0.00	0.10	0.10	0.04	0.27	0.27
Sat Flow, veh/h	1634	1820	36	1634	1067	677	0	1044	696	1634	1863	1458
Grp Volume(v), veh/h	86	0	154	8	0	407	0	0	5	52	11	106
Grp Sat Flow(s),veh/h/ln	1634	0	1856	1634	0	1743	0	0	1740	1634	1863	1458
Q Serve(g_s), s	2.0	0.0	2.2	0.2	0.0	8.0	0.0	0.0	0.1	1.2	0.2	2.2
Cycle Q Clear(g_c), s	2.0	0.0	2.2	0.2	0.0	8.0	0.0	0.0	0.1	1.2	0.2	2.2
Prop In Lane	1.00		0.02	1.00		0.39	0.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	105	0	689	14	0	550	0	0	182	73	497	389
V/C Ratio(X)	0.82	0.00	0.22	0.57	0.00	0.74	0.00	0.00	0.03	0.72	0.02	0.27
Avail Cap(c_a), veh/h	535	0	2327	175	0	1802	0	0	911	364	1195	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	8.2	18.9	0.0	11.7	0.0	0.0	15.4	18.0	10.3	11.1
Incr Delay (d2), s/veh	14.2	0.0	0.2	32.3	0.0	2.0	0.0	0.0	0.1	12.4	0.0	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	1.3	0.0	1.1	0.2	0.0	4.0	0.0	0.0	0.1	0.8	0.1	0.9
LnGrp Delay(d),s/veh	31.9	0.0	8.4	51.1	0.0	13.7	0.0	0.0	15.4	30.4	10.3	11.4
LnGrp LOS	C		A	D		B			B	C	B	B
Approach Vol, veh/h		240			415			5			169	
Approach Delay, s/veh		16.8			14.4			15.4			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	6.2	8.5	4.8	18.7	0.0	14.7	7.0	16.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	20.0	4.1	47.9	4.0	24.5	12.5	39.5
Max Q Clear Time (g_c+I1), s	3.2	2.1	2.2	4.2	0.0	4.2	4.0	10.0
Green Ext Time (p_c), s	0.0	0.3	0.0	2.2	0.0	0.4	0.1	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	87	176	5	9	289	183	1	4	2	54	13	100
Future Vol, veh/h	87	176	5	9	289	183	1	4	2	54	13	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	94	189	5	10	311	197	1	4	2	58	14	108

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	508	0	0	195	0	0	814	906	192	810	810	409
Stage 1	-	-	-	-	-	-	379	379	-	428	428	-
Stage 2	-	-	-	-	-	-	435	527	-	382	382	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1057	-	-	1378	-	-	297	276	850	298	314	642
Stage 1	-	-	-	-	-	-	643	615	-	605	585	-
Stage 2	-	-	-	-	-	-	600	528	-	640	613	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1057	-	-	1378	-	-	221	250	850	272	284	642
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	250	-	272	284	-
Stage 1	-	-	-	-	-	-	586	560	-	551	581	-
Stage 2	-	-	-	-	-	-	484	524	-	577	558	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.1	17.1	16.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	306	1057	-	-	1378	-	-	274	642
HCM Lane V/C Ratio	0.025	0.089	-	-	0.007	-	-	0.263	0.167
HCM Control Delay (s)	17.1	8.7	-	-	7.6	-	-	22.8	11.7
HCM Lane LOS	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	1	0.6

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	97	187	5	9	308	183	1	4	2	54	13	118
Future Vol, veh/h	97	187	5	9	308	183	1	4	2	54	13	118
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	201	5	10	331	197	1	4	2	58	14	127

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	528	0	0	206	0	0	868	959	204	865	864	430
Stage 1	-	-	-	-	-	-	412	412	-	449	449	-
Stage 2	-	-	-	-	-	-	456	547	-	416	415	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1039	-	-	1365	-	-	273	257	837	274	292	625
Stage 1	-	-	-	-	-	-	617	594	-	589	572	-
Stage 2	-	-	-	-	-	-	584	517	-	614	592	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1039	-	-	1365	-	-	192	230	837	247	261	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	230	-	247	261	-
Stage 1	-	-	-	-	-	-	555	535	-	530	568	-
Stage 2	-	-	-	-	-	-	451	513	-	547	533	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.1	18.2	16.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	280	1039	-	-	1365	-	-	250	625
HCM Lane V/C Ratio	0.027	0.1	-	-	0.007	-	-	0.288	0.203
HCM Control Delay (s)	18.2	8.9	-	-	7.7	-	-	25.1	12.2
HCM Lane LOS	C	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	1.2	0.8

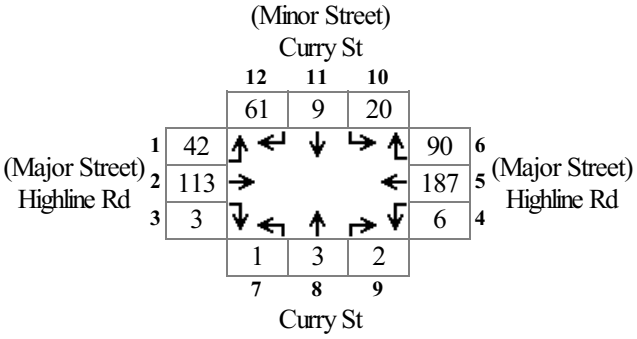
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	187	5	9	308	183	1	4	2	54	13	118
Future Volume (veh/h)	97	187	5	9	308	183	1	4	2	54	13	118
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	104	201	5	10	331	197	1	4	2	58	14	127
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	812	20	17	415	247	0	106	53	75	442	346
Arrive On Green	0.08	0.45	0.45	0.01	0.38	0.38	0.00	0.09	0.09	0.05	0.24	0.24
Sat Flow, veh/h	1634	1810	45	1634	1096	652	0	1173	586	1634	1863	1458
Grp Volume(v), veh/h	104	0	206	10	0	528	0	0	6	58	14	127
Grp Sat Flow(s),veh/h/ln	1634	0	1855	1634	0	1748	0	0	1759	1634	1863	1458
Q Serve(g_s), s	2.8	0.0	3.1	0.3	0.0	12.0	0.0	0.0	0.1	1.6	0.3	3.2
Cycle Q Clear(g_c), s	2.8	0.0	3.1	0.3	0.0	12.0	0.0	0.0	0.1	1.6	0.3	3.2
Prop In Lane	1.00		0.02	1.00		0.37	0.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	832	17	0	662	0	0	158	75	442	346
V/C Ratio(X)	0.79	0.00	0.25	0.59	0.00	0.80	0.00	0.00	0.04	0.77	0.03	0.37
Avail Cap(c_a), veh/h	460	0	1999	151	0	1553	0	0	792	313	1027	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	0.0	7.6	21.9	0.0	12.3	0.0	0.0	18.5	21.0	13.0	14.2
Incr Delay (d2), s/veh	10.3	0.0	0.2	28.0	0.0	2.3	0.0	0.0	0.1	15.2	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	1.6	0.0	1.6	0.3	0.0	6.1	0.0	0.0	0.1	1.0	0.1	1.4
LnGrp Delay(d),s/veh	30.4	0.0	7.8	49.9	0.0	14.5	0.0	0.0	18.6	36.2	13.1	14.8
LnGrp LOS	C		A	D		B			B	D	B	B
Approach Vol, veh/h		310			538			6			199	
Approach Delay, s/veh		15.4			15.2			18.6			20.9	
Approach LOS		B			B			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	6.5	8.5	5.0	24.4	0.0	15.0	8.1	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	20.0	4.1	47.9	4.0	24.5	12.5	39.5
Max Q Clear Time (g_c+I1), s	3.6	2.1	2.3	5.1	0.0	5.2	4.8	14.0
Green Ext Time (p_c), s	0.0	0.4	0.0	3.0	0.0	0.4	0.1	2.9

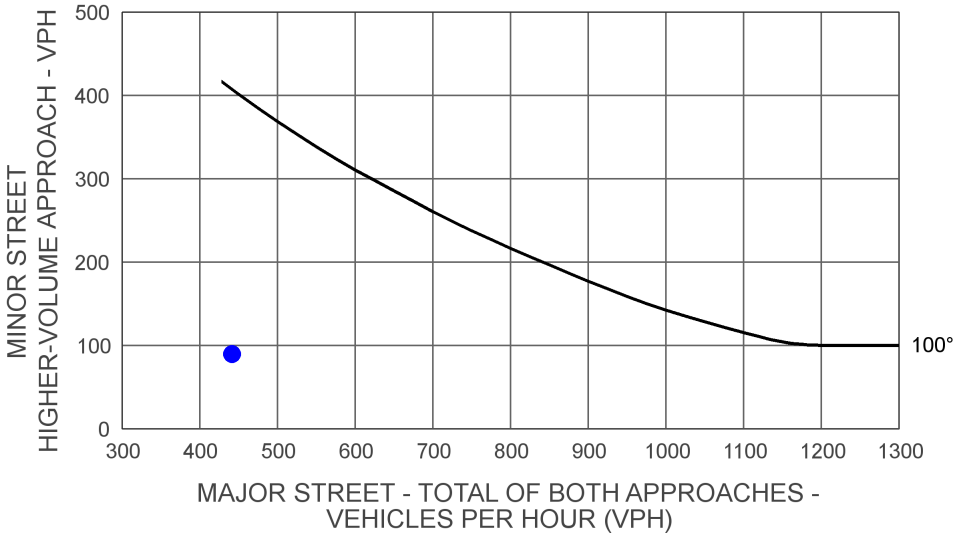
Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 5

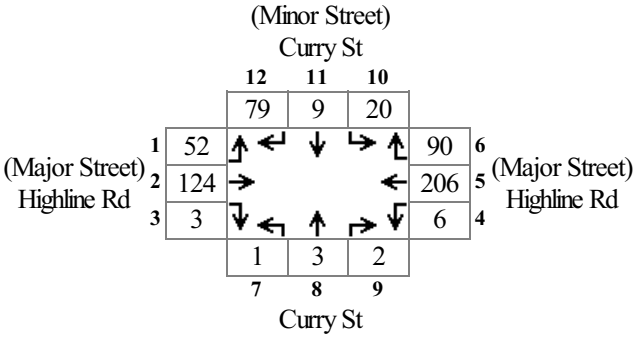


Major Total: 441
Minor High Volume: 90

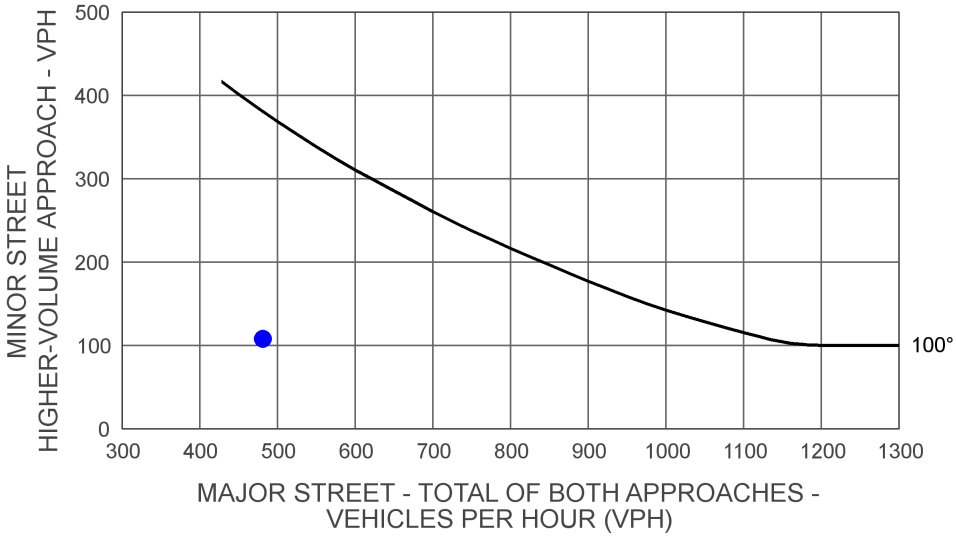


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 5

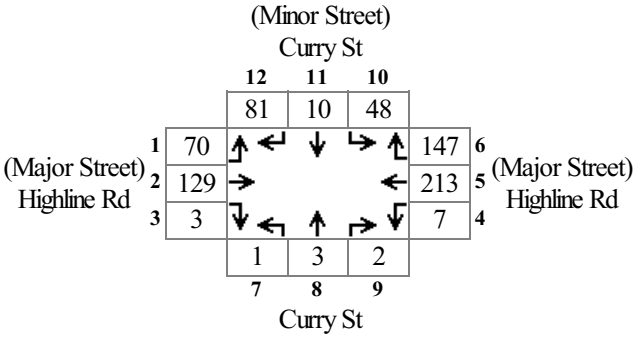


Major Total: 481
Minor High Volume: 108

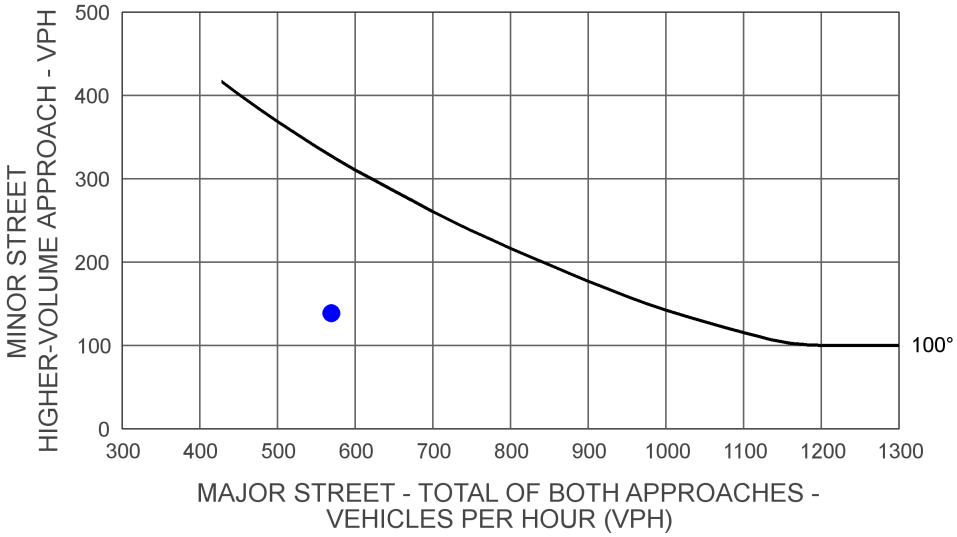


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 5

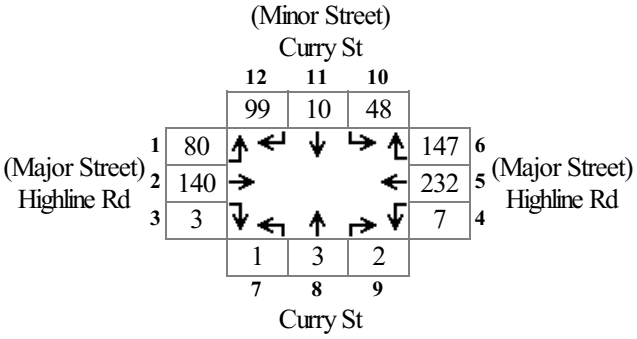


Major Total: 569
Minor High Volume: 139

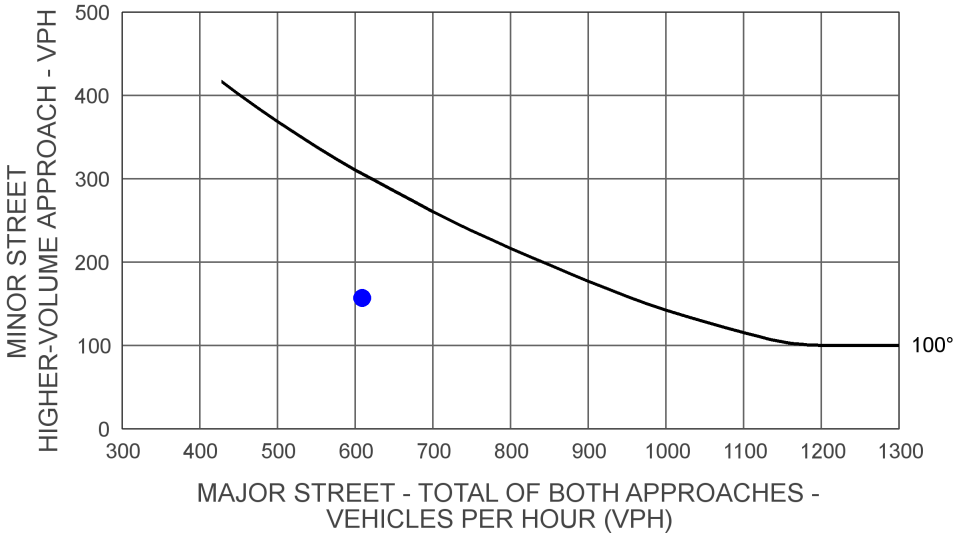


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 5

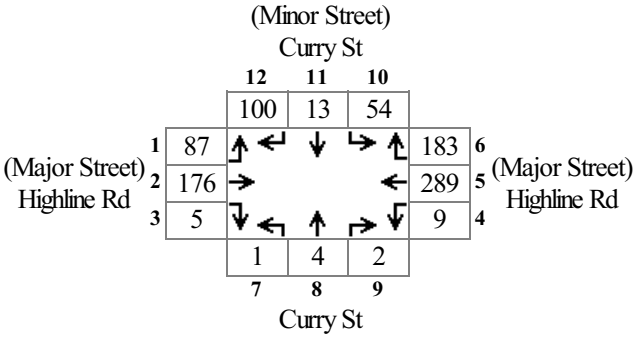


Major Total: 609
Minor High Volume: 157

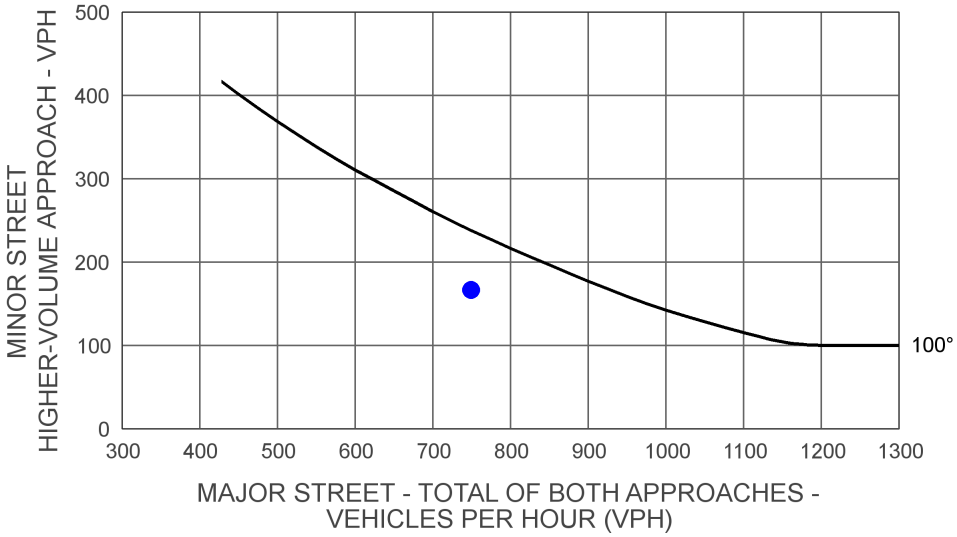


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 5

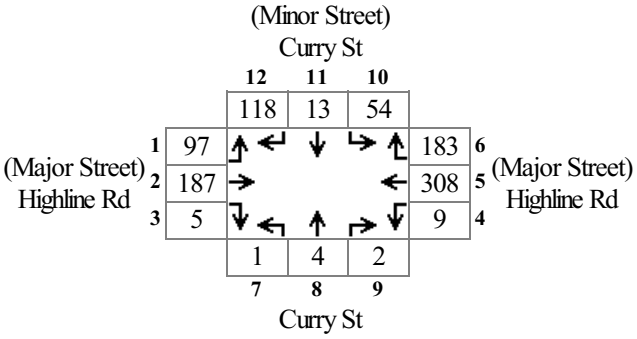


Major Total: 749
Minor High Volume: 167

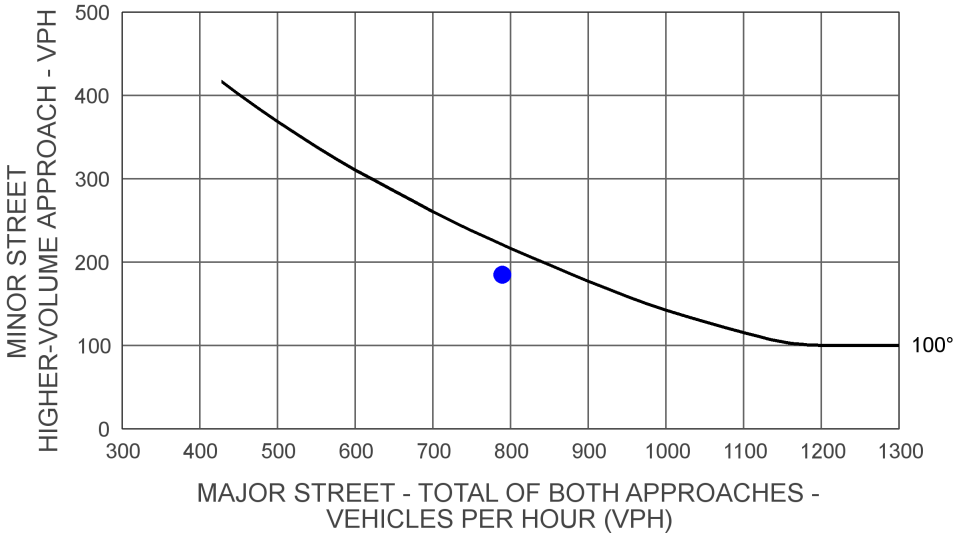


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 5



Major Total: 789
Minor High Volume: 185



Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	59	292	1	1	107	32	0	4	0	77	4	33
Future Vol, veh/h	59	292	1	1	107	32	0	4	0	77	4	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	487	2	2	178	53	0	7	0	128	7	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	232	0	0	488	0	0	896	919	488	896	893	205
Stage 1	-	-	-	-	-	-	684	684	-	208	208	-
Stage 2	-	-	-	-	-	-	212	235	-	688	685	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1336	-	-	1075	-	-	261	271	580	261	281	836
Stage 1	-	-	-	-	-	-	439	449	-	794	730	-
Stage 2	-	-	-	-	-	-	790	710	-	436	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1336	-	-	1075	-	-	225	251	580	241	260	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	251	-	241	260	-
Stage 1	-	-	-	-	-	-	407	416	-	736	729	-
Stage 2	-	-	-	-	-	-	730	709	-	398	415	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	19.7	29.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	251	1336	-	-	1075	-	-	242	836
HCM Lane V/C Ratio	0.027	0.074	-	-	0.002	-	-	0.558	0.066
HCM Control Delay (s)	19.7	7.9	-	-	8.4	-	-	37.1	9.6
HCM Lane LOS	C	A	-	-	A	-	-	E	A
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	3.1	0.2

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	74	309	1	1	113	32	0	4	0	77	4	38
Future Vol, veh/h	74	309	1	1	113	32	0	4	0	77	4	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	123	515	2	2	188	53	0	7	0	128	7	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	242	0	0	517	0	0	985	1008	516	984	981	215
Stage 1	-	-	-	-	-	-	763	763	-	218	218	-
Stage 2	-	-	-	-	-	-	222	245	-	766	763	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1324	-	-	1049	-	-	227	240	559	228	249	825
Stage 1	-	-	-	-	-	-	397	413	-	784	723	-
Stage 2	-	-	-	-	-	-	780	703	-	395	413	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1324	-	-	1049	-	-	190	217	559	207	225	825
Mov Cap-2 Maneuver	-	-	-	-	-	-	190	217	-	207	225	-
Stage 1	-	-	-	-	-	-	360	375	-	711	722	-
Stage 2	-	-	-	-	-	-	712	702	-	352	375	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.1	22.1	36.9
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	217	1324	-	-	1049	-	-	208	825
HCM Lane V/C Ratio	0.031	0.093	-	-	0.002	-	-	0.649	0.077
HCM Control Delay (s)	22.1	8	-	-	8.4	-	-	49.6	9.7
HCM Lane LOS	C	A	-	-	A	-	-	E	A
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	3.9	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	309	1	1	113	32	0	4	0	77	4	38
Future Volume (veh/h)	74	309	1	1	113	32	0	4	0	77	4	38
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	123	515	2	2	188	53	0	7	0	128	7	63
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	619	2	4	335	94	0	839	0	693	839	657
Arrive On Green	0.10	0.33	0.33	0.00	0.24	0.24	0.00	0.45	0.00	0.45	0.45	0.45
Sat Flow, veh/h	1634	1854	7	1634	1399	394	0	1863	0	1292	1863	1458
Grp Volume(v), veh/h	123	0	517	2	0	241	0	7	0	128	7	63
Grp Sat Flow(s),veh/h/ln	1634	0	1861	1634	0	1793	0	1863	0	1292	1863	1458
Q Serve(g_s), s	4.7	0.0	16.2	0.1	0.0	7.5	0.0	0.1	0.0	3.8	0.1	1.6
Cycle Q Clear(g_c), s	4.7	0.0	16.2	0.1	0.0	7.5	0.0	0.1	0.0	4.0	0.1	1.6
Prop In Lane	1.00		0.00	1.00		0.22	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	622	4	0	429	0	839	0	693	839	657
V/C Ratio(X)	0.78	0.00	0.83	0.56	0.00	0.56	0.00	0.01	0.00	0.18	0.01	0.10
Avail Cap(c_a), veh/h	517	0	1486	103	0	978	0	839	0	693	839	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	0.0	19.4	31.5	0.0	21.1	0.0	9.6	0.0	10.7	9.6	10.0
Incr Delay (d2), s/veh	8.0	0.0	3.0	94.2	0.0	1.2	0.0	0.0	0.0	0.6	0.0	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	2.4	0.0	8.8	0.1	0.0	3.8	0.0	0.1	0.0	1.5	0.1	0.7
LnGrp Delay(d),s/veh	35.9	0.0	22.4	125.7	0.0	22.3	0.0	9.6	0.0	11.3	9.6	10.3
LnGrp LOS	D		C	F		C		A		B	A	B
Approach Vol, veh/h		640			243			7			198	
Approach Delay, s/veh		25.0			23.2			9.6			10.9	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		33.0	4.6	25.6		33.0	10.6	19.6
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		28.5	4.0	50.5		28.5	20.0	34.5
Max Q Clear Time (g_c+I1), s		2.1	2.1	18.2		6.0	6.7	9.5
Green Ext Time (p_c), s		0.7	0.0	2.9		0.7	0.3	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	31.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	74	333	1	1	122	49	0	4	0	127	4	57
Future Vol, veh/h	74	333	1	1	122	49	0	4	0	127	4	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	123	555	2	2	203	82	0	7	0	212	7	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	285	0	0	557	0	0	1054	1091	556	1054	1051	244
Stage 1	-	-	-	-	-	-	803	803	-	248	248	-
Stage 2	-	-	-	-	-	-	251	288	-	806	803	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1277	-	-	1014	-	-	204	215	531	~ 204	227	795
Stage 1	-	-	-	-	-	-	377	396	-	756	701	-
Stage 2	-	-	-	-	-	-	753	674	-	376	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1277	-	-	1014	-	-	162	194	531	~ 184	205	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	194	-	~ 184	205	-
Stage 1	-	-	-	-	-	-	341	358	-	683	700	-
Stage 2	-	-	-	-	-	-	655	673	-	333	358	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0	24.2	124.6
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	194	1277	-	-	1014	-	-	185	795
HCM Lane V/C Ratio	0.034	0.097	-	-	0.002	-	-	1.18	0.119
HCM Control Delay (s)	24.2	8.1	-	-	8.6	-	-	174.4	10.1
HCM Lane LOS	C	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	11.4	0.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	44.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	89	350	1	1	128	49	0	4	0	127	4	62
Future Vol, veh/h	89	350	1	1	128	49	0	4	0	127	4	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	583	2	2	213	82	0	7	0	212	7	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	585	0	0	1142	1179	584	1142	1140	254
Stage 1	-	-	-	-	-	-	881	881	-	258	258	-
Stage 2	-	-	-	-	-	-	261	298	-	884	882	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1266	-	-	990	-	-	177	190	512	~ 177	201	785
Stage 1	-	-	-	-	-	-	341	365	-	747	694	-
Stage 2	-	-	-	-	-	-	744	667	-	340	364	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1266	-	-	990	-	-	136	167	512	~ 156	177	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	167	-	~ 156	177	-
Stage 1	-	-	-	-	-	-	301	322	-	660	693	-
Stage 2	-	-	-	-	-	-	639	666	-	294	321	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	27.5	182.8
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	167	1266	-	-	990	-	-	157	785
HCM Lane V/C Ratio	0.04	0.117	-	-	0.002	-	-	1.391	0.132
HCM Control Delay (s)	27.5	8.2	-	-	8.6	-	-	264.4	10.3
HCM Lane LOS	D	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0	-	-	13.7	0.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	350	1	1	128	49	0	4	0	127	4	62
Future Volume (veh/h)	89	350	1	1	128	49	0	4	0	127	4	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	148	583	2	2	213	82	0	7	0	212	7	103
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	688	2	4	331	127	0	793	0	655	793	621
Arrive On Green	0.12	0.37	0.37	0.00	0.26	0.26	0.00	0.43	0.00	0.43	0.43	0.43
Sat Flow, veh/h	1634	1855	6	1634	1282	494	0	1863	0	1292	1863	1458
Grp Volume(v), veh/h	148	0	585	2	0	295	0	7	0	212	7	103
Grp Sat Flow(s),veh/h/ln	1634	0	1862	1634	0	1776	0	1863	0	1292	1863	1458
Q Serve(g_s), s	5.9	0.0	19.3	0.1	0.0	9.9	0.0	0.1	0.0	7.6	0.1	2.9
Cycle Q Clear(g_c), s	5.9	0.0	19.3	0.1	0.0	9.9	0.0	0.1	0.0	7.7	0.1	2.9
Prop In Lane	1.00		0.00	1.00		0.28	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	0	690	4	0	458	0	793	0	655	793	621
V/C Ratio(X)	0.79	0.00	0.85	0.56	0.00	0.64	0.00	0.01	0.00	0.32	0.01	0.17
Avail Cap(c_a), veh/h	488	0	1404	98	0	915	0	793	0	655	793	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	19.3	33.4	0.0	22.1	0.0	11.1	0.0	13.3	11.1	11.9
Incr Delay (d2), s/veh	7.1	0.0	3.0	94.4	0.0	1.5	0.0	0.0	0.0	1.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	10.5	0.1	0.0	5.0	0.0	0.1	0.0	2.9	0.1	1.3
LnGrp Delay(d),s/veh	36.0	0.0	22.3	127.8	0.0	23.6	0.0	11.1	0.0	14.6	11.1	12.5
LnGrp LOS	D		C	F		C		B		B	B	B
Approach Vol, veh/h		733			297			7			322	
Approach Delay, s/veh		25.1			24.3			11.1			13.9	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		33.0	4.6	29.3		33.0	12.2	21.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		28.5	4.0	50.5		28.5	20.0	34.5
Max Q Clear Time (g_c+I1), s		2.1	2.1	21.3		9.7	7.9	11.9
Green Ext Time (p_c), s		1.2	0.0	3.5		1.2	0.3	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	135.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	99	454	2	2	165	62	0	5	0	150	6	67
Future Vol, veh/h	99	454	2	2	165	62	0	5	0	150	6	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	165	757	3	3	275	103	0	8	0	250	10	112

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	760	0	0	1426	1473	758	1426	1423	327
Stage 1	-	-	-	-	-	-	1088	1088	-	333	333	-
Stage 2	-	-	-	-	-	-	338	385	-	1093	1090	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1180	-	-	852	-	-	113	127	407	~ 113	136	714
Stage 1	-	-	-	-	-	-	261	292	-	681	644	-
Stage 2	-	-	-	-	-	-	676	611	-	260	291	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1180	-	-	852	-	-	79	109	407	~ 95	117	714
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	109	-	~ 95	117	-
Stage 1	-	-	-	-	-	-	225	251	-	586	642	-
Stage 2	-	-	-	-	-	-	559	609	-	~ 216	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.1	40.7	$ 609.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	109	1180	-	-	852	-	-	96	714
HCM Lane V/C Ratio	0.076	0.14	-	-	0.004	-	-	2.708	0.156
HCM Control Delay (s)	40.7	8.5	-	-	9.2	-	-	$ 866.7	11
HCM Lane LOS	E	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.2	0.5	-	-	0	-	-	24.5	0.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	165.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	114	471	2	2	171	62	0	5	0	150	6	72
Future Vol, veh/h	114	471	2	2	171	62	0	5	0	150	6	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	190	785	3	3	285	103	0	8	0	250	10	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	388	0	0	788	0	0	1515	1562	787	1514	1511	337
Stage 1	-	-	-	-	-	-	1167	1167	-	343	343	-
Stage 2	-	-	-	-	-	-	348	395	-	1171	1168	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1170	-	-	831	-	-	98	112	392	~ 98	120	705
Stage 1	-	-	-	-	-	-	236	268	-	672	637	-
Stage 2	-	-	-	-	-	-	668	605	-	~ 235	267	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1170	-	-	831	-	-	66	93	392	~ 80	100	705
Mov Cap-2 Maneuver	-	-	-	-	-	-	66	93	-	~ 80	100	-
Stage 1	-	-	-	-	-	-	198	224	-	563	635	-
Stage 2	-	-	-	-	-	-	544	603	-	~ 190	224	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.1	47.5	$ 759.4
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	93	1170	-	-	831	-	-	81	705
HCM Lane V/C Ratio	0.09	0.162	-	-	0.004	-	-	3.21	0.17
HCM Control Delay (s)	47.5	8.7	-	-	9.3	-	-	$ 1104.7	11.2
HCM Lane LOS	E	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.3	0.6	-	-	0	-	-	26.1	0.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

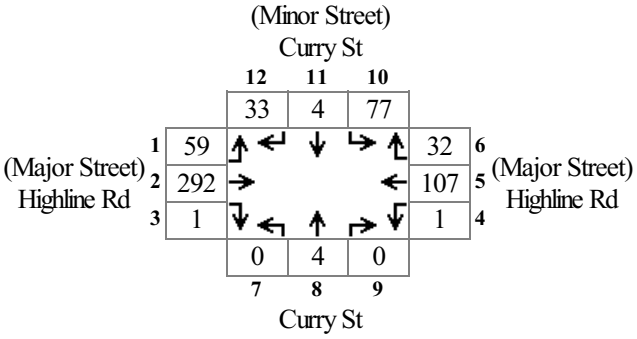
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	471	2	2	171	62	0	5	0	150	6	72
Future Volume (veh/h)	114	471	2	2	171	62	0	5	0	150	6	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1750	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	190	785	3	3	285	103	0	8	0	250	10	120
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	1	1	1
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	875	3	5	437	158	0	664	0	546	664	519
Arrive On Green	0.14	0.47	0.47	0.00	0.33	0.33	0.00	0.36	0.00	0.36	0.36	0.36
Sat Flow, veh/h	1634	1854	7	1634	1307	472	0	1863	0	1291	1863	1458
Grp Volume(v), veh/h	190	0	788	3	0	388	0	8	0	250	10	120
Grp Sat Flow(s),veh/h/ln	1634	0	1861	1634	0	1779	0	1863	0	1291	1863	1458
Q Serve(g_s), s	9.0	0.0	31.0	0.1	0.0	14.9	0.0	0.2	0.0	12.4	0.3	4.6
Cycle Q Clear(g_c), s	9.0	0.0	31.0	0.1	0.0	14.9	0.0	0.2	0.0	12.6	0.3	4.6
Prop In Lane	1.00		0.00	1.00		0.27	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	0	878	5	0	595	0	664	0	546	664	519
V/C Ratio(X)	0.83	0.00	0.90	0.57	0.00	0.65	0.00	0.01	0.00	0.46	0.02	0.23
Avail Cap(c_a), veh/h	408	0	1175	82	0	767	0	664	0	546	664	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	19.4	39.8	0.0	22.7	0.0	16.7	0.0	20.7	16.7	18.1
Incr Delay (d2), s/veh	7.3	0.0	7.4	71.3	0.0	1.3	0.0	0.0	0.0	2.7	0.0	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	4.5	0.0	17.6	0.2	0.0	7.4	0.0	0.1	0.0	4.9	0.1	2.0
LnGrp Delay(d),s/veh	40.8	0.0	26.8	111.1	0.0	23.9	0.0	16.7	0.0	23.5	16.7	19.1
LnGrp LOS	D		C	F		C		B		C	B	B
Approach Vol, veh/h		978			391			8			380	
Approach Delay, s/veh		29.5			24.6			16.7			21.9	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		33.0	4.8	42.2		33.0	15.8	31.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		28.5	4.0	50.5		28.5	20.0	34.5
Max Q Clear Time (g_c+I1), s		2.2	2.1	33.0		14.6	11.0	16.9
Green Ext Time (p_c), s		1.5	0.0	4.7		1.3	0.4	4.7

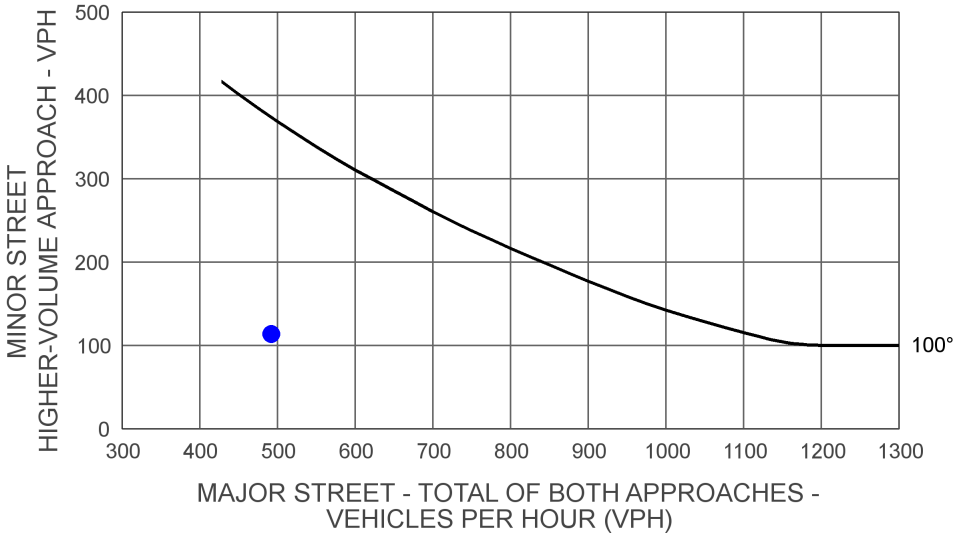
Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 5

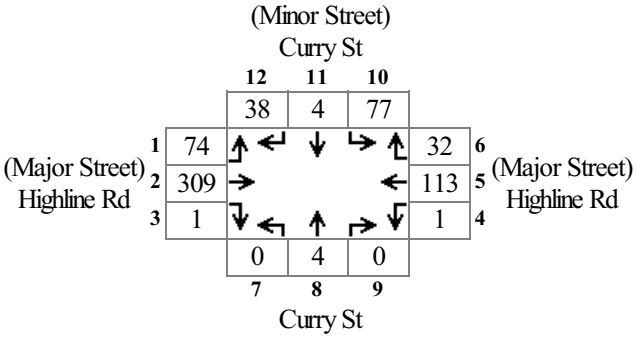


Major Total: 492
Minor High Volume: 114

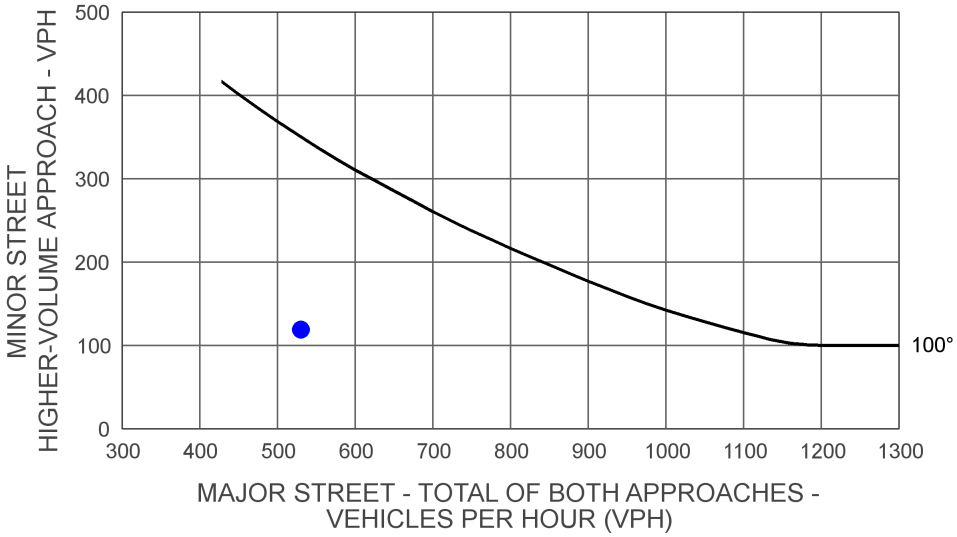


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 5

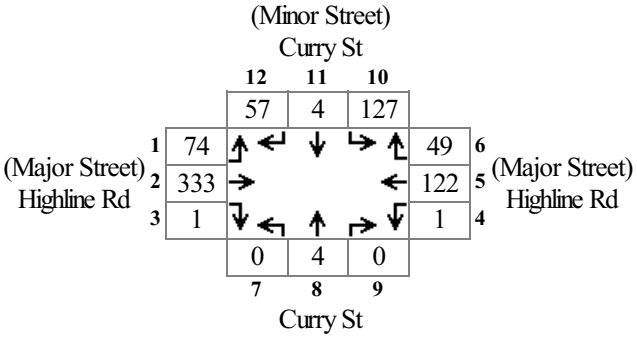


Major Total: 530
Minor High Volume: 119

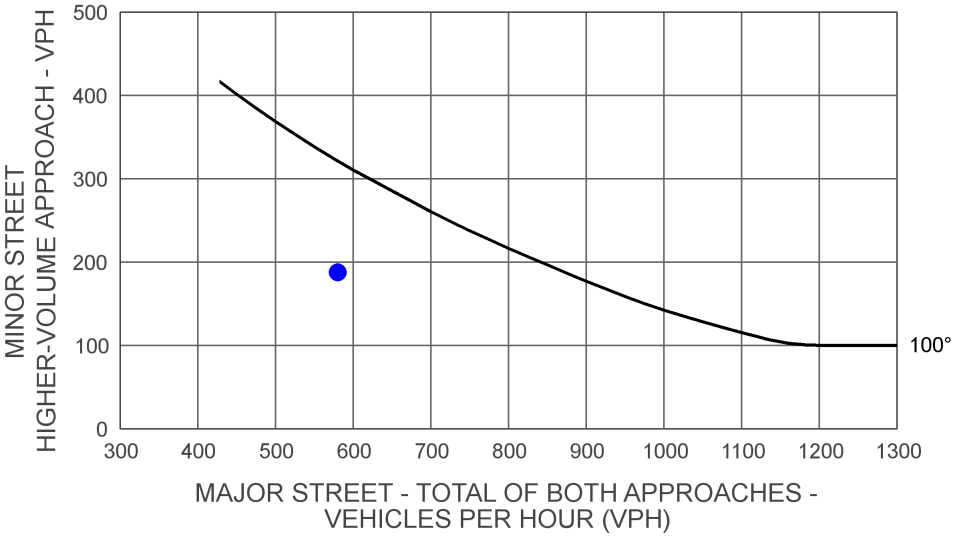


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 5

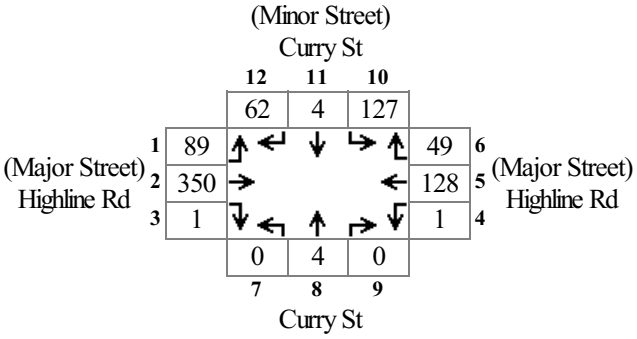


Major Total: 580
Minor High Volume: 188

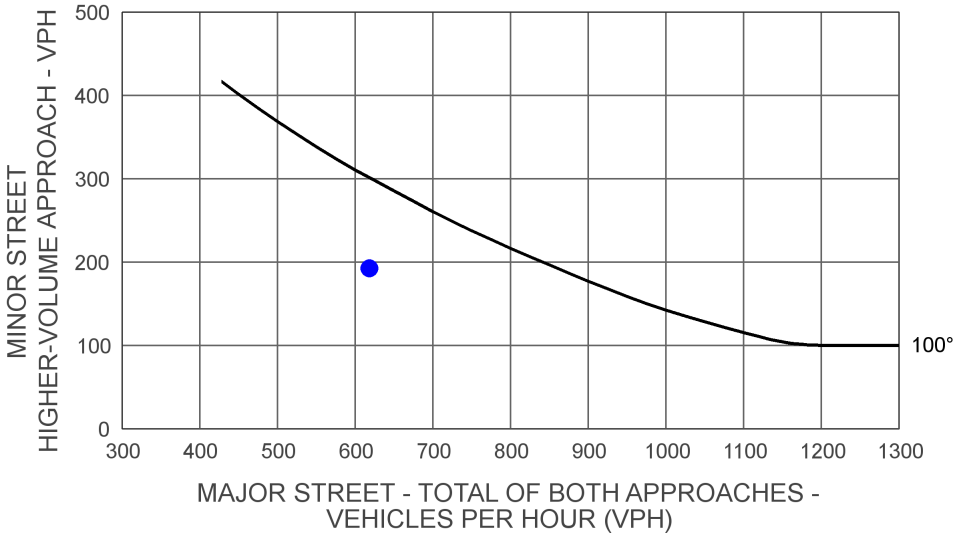


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 5

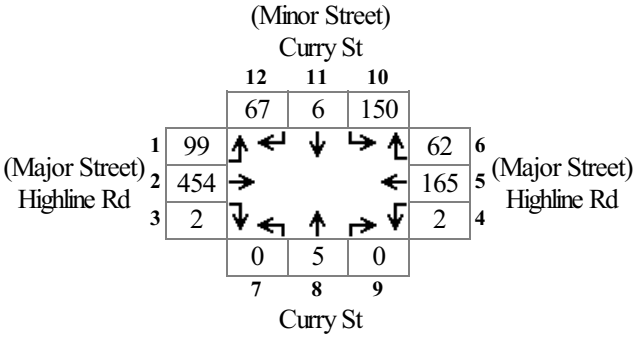


Major Total: 618
Minor High Volume: 193

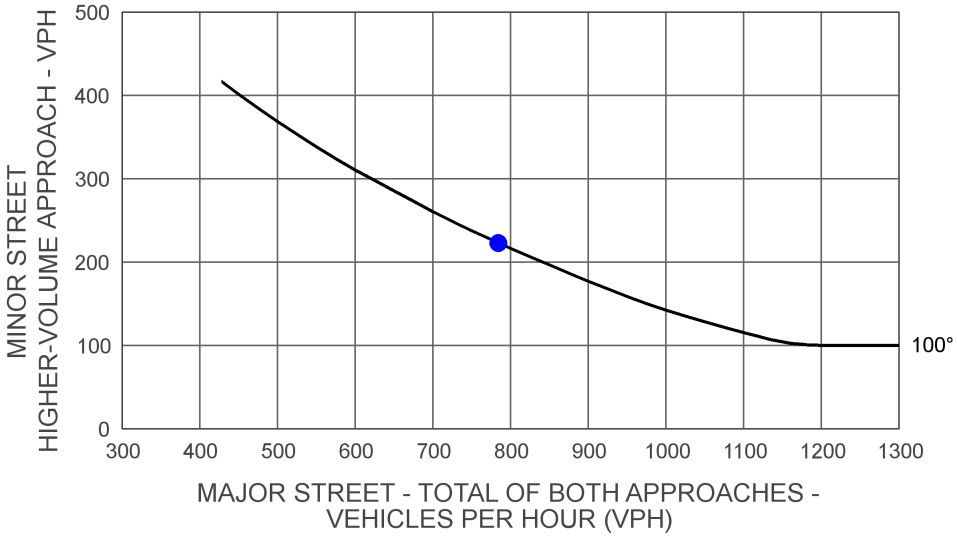


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 5

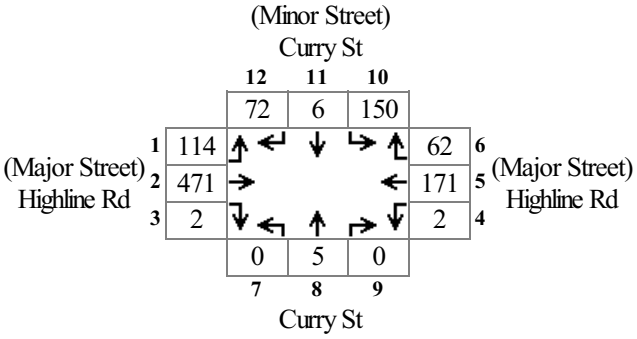


Major Total: 784
Minor High Volume: 223

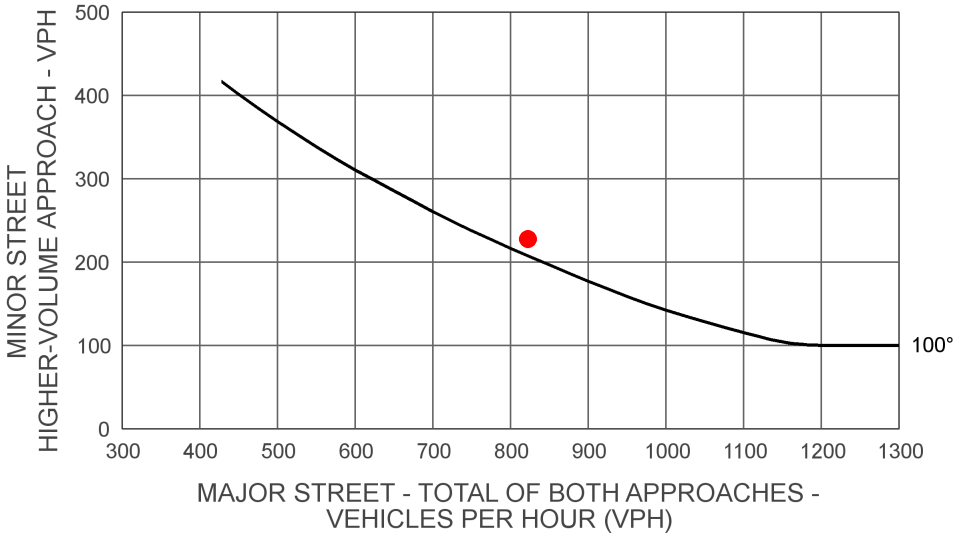


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 5



Major Total: 822
Minor High Volume: 228



Intersection 6
Dennison Ave & Highline Rd

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	23	108	7	19	266	1	5	4	2	20	10	17
Future Vol, veh/h	23	108	7	19	266	1	5	4	2	20	10	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	123	8	22	302	1	6	5	2	23	11	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	303	0	0	131	0	0	540	526	127	528	529	303
Stage 1	-	-	-	-	-	-	179	179	-	346	346	-
Stage 2	-	-	-	-	-	-	361	347	-	182	183	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1258	-	-	1454	-	-	453	457	923	461	455	737
Stage 1	-	-	-	-	-	-	823	751	-	670	635	-
Stage 2	-	-	-	-	-	-	657	635	-	820	748	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1258	-	-	1454	-	-	419	439	923	442	437	737
Mov Cap-2 Maneuver	-	-	-	-	-	-	419	439	-	442	437	-
Stage 1	-	-	-	-	-	-	805	734	-	655	624	-
Stage 2	-	-	-	-	-	-	617	624	-	795	732	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.5	12.8	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	474	1258	-	-	1454	-	-	515
HCM Lane V/C Ratio	0.026	0.021	-	-	0.015	-	-	0.104
HCM Control Delay (s)	12.8	7.9	0	-	7.5	0	-	12.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	33	109	7	19	267	1	5	4	2	20	10	35
Future Vol, veh/h	33	109	7	19	267	1	5	4	2	20	10	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	118	8	21	290	1	5	4	2	22	11	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	291	0	0	126	0	0	551	527	122	529	530	291
Stage 1	-	-	-	-	-	-	194	194	-	332	332	-
Stage 2	-	-	-	-	-	-	357	333	-	197	198	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1271	-	-	1460	-	-	445	456	929	460	455	748
Stage 1	-	-	-	-	-	-	808	740	-	681	644	-
Stage 2	-	-	-	-	-	-	661	644	-	805	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1271	-	-	1460	-	-	400	435	929	439	434	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	400	435	-	439	434	-
Stage 1	-	-	-	-	-	-	784	718	-	661	633	-
Stage 2	-	-	-	-	-	-	606	633	-	774	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.5	13	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	461	1271	-	-	1460	-	-	563
HCM Lane V/C Ratio	0.026	0.028	-	-	0.014	-	-	0.125
HCM Control Delay (s)	13	7.9	0	-	7.5	0	-	12.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	109	7	19	267	1	5	4	2	20	10	35
Future Volume (veh/h)	33	109	7	19	267	1	5	4	2	20	10	35
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	38	124	8	22	303	1	6	5	2	23	11	40
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	535	34	225	543	2	370	208	54	323	84	184
Arrive On Green	0.00	0.31	0.31	0.31	0.31	0.31	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	1731	112	66	1758	6	424	978	255	340	395	864
Grp Volume(v), veh/h	0	0	132	326	0	0	13	0	0	74	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1843	1830	0	0	1656	0	0	1599	0	0
Q Serve(g_s), s	0.0	0.0	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.0	2.8	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0
Prop In Lane	0.00		0.06	0.07		0.00	0.46		0.15	0.31		0.54
Lane Grp Cap(c), veh/h	0	0	569	769	0	0	632	0	0	591	0	0
V/C Ratio(X)	0.00	0.00	0.23	0.42	0.00	0.00	0.02	0.00	0.00	0.13	0.00	0.00
Avail Cap(c_a), veh/h	0	0	7398	5915	0	0	2278	0	0	2245	0	0
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)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.8	5.4	0.0	0.0	5.9	0.0	0.0	6.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	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	0.0	0.0	0.5	1.4	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	5.0	5.8	0.0	0.0	5.9	0.0	0.0	6.2	0.0	0.0
LnGrp LOS			A	A			A			A		
Approach Vol, veh/h		132			326			13			74	
Approach Delay, s/veh		5.0			5.8			5.9			6.2	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		8.5		10.3		8.5	0.0	10.3
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.0		75.5		24.0	11.5	59.5
Max Q Clear Time (g_c+I1), s		2.1		3.0		2.7	0.0	4.8
Green Ext Time (p_c), s		0.2		1.6		0.2	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	26	149	8	22	351	23	6	5	2	37	12	20
Future Vol, veh/h	26	149	8	22	351	23	6	5	2	37	12	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	169	9	25	399	26	7	6	2	42	14	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	425	0	0	178	0	0	713	708	174	699	700	412
Stage 1	-	-	-	-	-	-	233	233	-	462	462	-
Stage 2	-	-	-	-	-	-	480	475	-	237	238	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1134	-	-	1398	-	-	347	360	869	354	363	640
Stage 1	-	-	-	-	-	-	770	712	-	580	565	-
Stage 2	-	-	-	-	-	-	567	557	-	766	708	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1134	-	-	1398	-	-	312	342	869	335	344	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	342	-	335	344	-
Stage 1	-	-	-	-	-	-	748	691	-	563	552	-
Stage 2	-	-	-	-	-	-	521	544	-	736	687	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	15.4	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	360	1134	-	-	1398	-	-	391
HCM Lane V/C Ratio	0.041	0.026	-	-	0.018	-	-	0.201
HCM Control Delay (s)	15.4	8.3	0	-	7.6	0	-	16.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.7

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	36	150	8	22	352	23	6	5	2	37	12	38
Future Vol, veh/h	36	150	8	22	352	23	6	5	2	37	12	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	174	9	26	409	27	7	6	2	43	14	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	436	0	0	184	0	0	766	750	179	741	741	423
Stage 1	-	-	-	-	-	-	263	263	-	474	474	-
Stage 2	-	-	-	-	-	-	503	487	-	267	267	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1124	-	-	1391	-	-	320	340	864	332	344	631
Stage 1	-	-	-	-	-	-	742	691	-	571	558	-
Stage 2	-	-	-	-	-	-	551	550	-	738	688	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1124	-	-	1391	-	-	273	318	864	310	321	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	273	318	-	310	321	-
Stage 1	-	-	-	-	-	-	711	662	-	547	544	-
Stage 2	-	-	-	-	-	-	487	536	-	699	659	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.4	16.6	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	325	1124	-	-	1391	-	-	401
HCM Lane V/C Ratio	0.047	0.037	-	-	0.018	-	-	0.252
HCM Control Delay (s)	16.6	8.3	0	-	7.6	0	-	17
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	150	8	22	352	23	6	5	2	37	12	38
Future Volume (veh/h)	36	150	8	22	352	23	6	5	2	37	12	38
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	41	170	9	25	400	26	7	6	2	42	14	43
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	688	36	196	654	41	329	186	41	337	69	128
Arrive On Green	0.00	0.39	0.39	0.39	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	0	1754	93	46	1668	105	440	992	220	521	368	682
Grp Volume(v), veh/h	0	0	179	451	0	0	15	0	0	99	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1846	1819	0	0	1653	0	0	1571	0	0
Q Serve(g_s), s	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.4	4.2	0.0	0.0	0.1	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.00		0.05	0.06		0.06	0.47		0.13	0.42		0.43
Lane Grp Cap(c), veh/h	0	0	724	891	0	0	556	0	0	533	0	0
V/C Ratio(X)	0.00	0.00	0.25	0.51	0.00	0.00	0.03	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	0	0	6516	5167	0	0	2001	0	0	1965	0	0
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)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.4	5.2	0.0	0.0	7.1	0.0	0.0	7.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	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	0.0	0.0	0.7	2.1	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	4.5	5.7	0.0	0.0	7.1	0.0	0.0	7.7	0.0	0.0
LnGrp LOS			A	A			A			A		
Approach Vol, veh/h		179			451			15			99	
Approach Delay, s/veh		4.5			5.7			7.1			7.7	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		8.5		12.9		8.5	0.0	12.9
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.0		75.5		24.0	11.5	59.5
Max Q Clear Time (g_c+I1), s		2.1		3.4		3.1	0.0	6.2
Green Ext Time (p_c), s		0.3		2.4		0.3	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	36	193	11	31	472	24	9	7	4	48	18	30
Future Vol, veh/h	36	193	11	31	472	24	9	7	4	48	18	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	219	13	35	536	27	10	8	5	55	20	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	564	0	0	232	0	0	955	941	226	934	934	550
Stage 1	-	-	-	-	-	-	307	307	-	620	620	-
Stage 2	-	-	-	-	-	-	648	634	-	314	314	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1008	-	-	1336	-	-	238	263	813	246	266	535
Stage 1	-	-	-	-	-	-	703	661	-	476	480	-
Stage 2	-	-	-	-	-	-	459	473	-	697	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1008	-	-	1336	-	-	195	241	813	223	244	535
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	241	-	223	244	-
Stage 1	-	-	-	-	-	-	670	630	-	454	462	-
Stage 2	-	-	-	-	-	-	395	455	-	652	625	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.5	20.8	26.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	250	1008	-	-	1336	-	-	278
HCM Lane V/C Ratio	0.091	0.041	-	-	0.026	-	-	0.392
HCM Control Delay (s)	20.8	8.7	0	-	7.8	0	-	26.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	1.8

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	46	194	11	31	473	24	9	7	4	48	18	48
Future Vol, veh/h	46	194	11	31	473	24	9	7	4	48	18	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	220	13	35	538	27	10	8	5	55	20	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	565	0	0	233	0	0	990	966	227	960	960	551
Stage 1	-	-	-	-	-	-	331	331	-	622	622	-
Stage 2	-	-	-	-	-	-	659	635	-	338	338	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1007	-	-	1335	-	-	225	255	812	236	257	534
Stage 1	-	-	-	-	-	-	682	645	-	474	479	-
Stage 2	-	-	-	-	-	-	453	472	-	676	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1007	-	-	1335	-	-	175	231	812	212	233	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	175	231	-	212	233	-
Stage 1	-	-	-	-	-	-	642	607	-	446	461	-
Stage 2	-	-	-	-	-	-	374	454	-	624	603	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.5	22.3	27.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	231	1007	-	-	1335	-	-	290
HCM Lane V/C Ratio	0.098	0.052	-	-	0.026	-	-	0.447
HCM Control Delay (s)	22.3	8.8	0	-	7.8	0	-	27.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.1	-	-	2.2

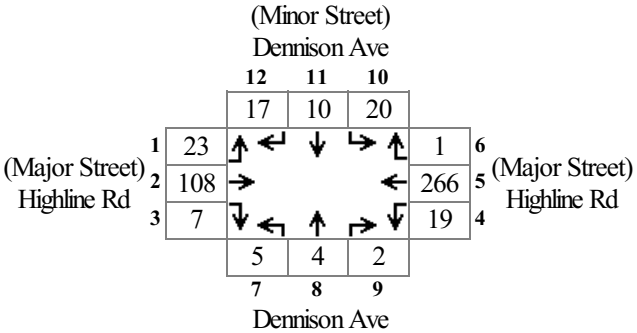
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	194	11	31	473	24	9	7	4	48	18	48
Future Volume (veh/h)	46	194	11	31	473	24	9	7	4	48	18	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	52	220	12	35	538	27	10	8	5	55	20	55
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	823	45	175	793	38	277	149	61	298	61	113
Arrive On Green	0.00	0.47	0.47	0.47	0.47	0.47	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	0	1750	95	49	1687	82	415	871	357	546	356	661
Grp Volume(v), veh/h	0	0	232	600	0	0	23	0	0	130	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1846	1818	0	0	1644	0	0	1563	0	0
Q Serve(g_s), s	0.0	0.0	1.9	0.1	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.9	6.4	0.0	0.0	0.3	0.0	0.0	1.8	0.0	0.0
Prop In Lane	0.00		0.05	0.06		0.04	0.43		0.22	0.42		0.42
Lane Grp Cap(c), veh/h	0	0	868	1006	0	0	487	0	0	471	0	0
V/C Ratio(X)	0.00	0.00	0.27	0.60	0.00	0.00	0.05	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	0	0	5562	4403	0	0	1691	0	0	1677	0	0
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)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.0	5.2	0.0	0.0	8.7	0.0	0.0	9.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0.0	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	0.0	0.0	1.0	3.3	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	4.2	5.8	0.0	0.0	8.8	0.0	0.0	9.7	0.0	0.0
LnGrp LOS			A	A			A			A		
Approach Vol, veh/h		232			600			23			130	
Approach Delay, s/veh		4.2			5.8			8.8			9.7	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		8.8		16.3		8.8	0.0	16.3
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.0		75.5		24.0	11.5	59.5
Max Q Clear Time (g_c+I1), s		2.3		3.9		3.8	0.0	8.4
Green Ext Time (p_c), s		0.5		3.4		0.4	0.0	3.4

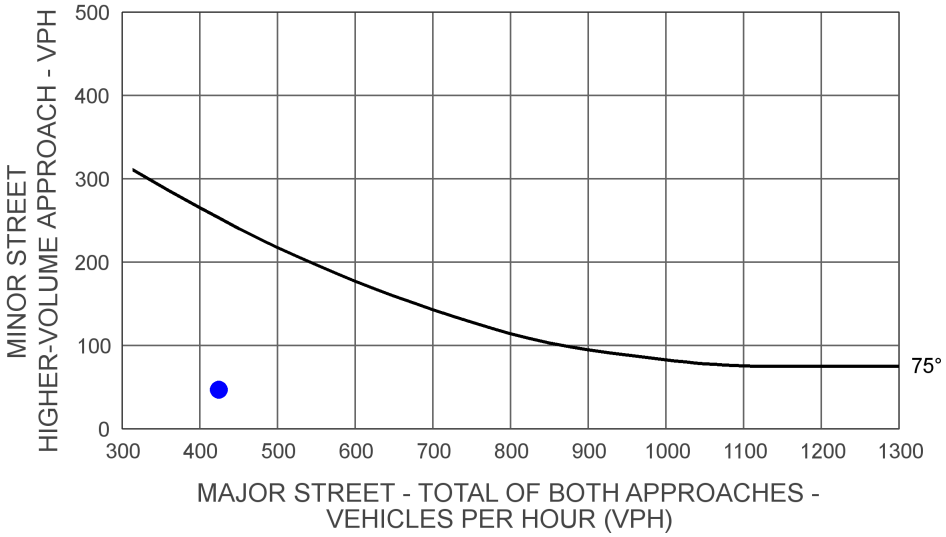
Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 6

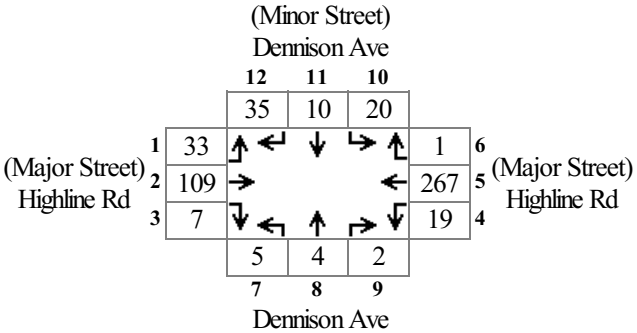


Major Total: 424
Minor High Volume: 47

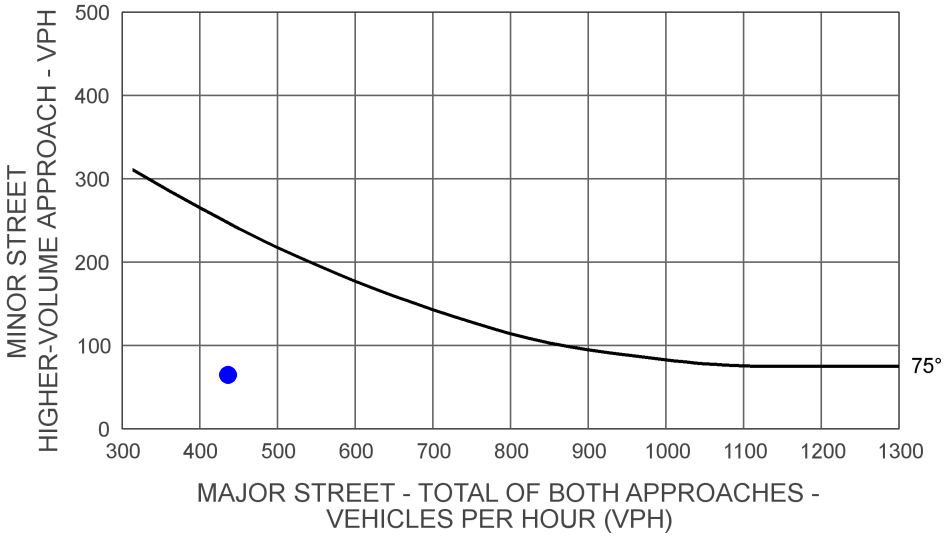


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 6

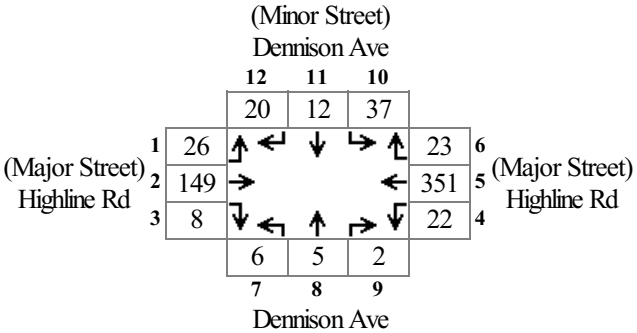


Major Total: 436
Minor High Volume: 65

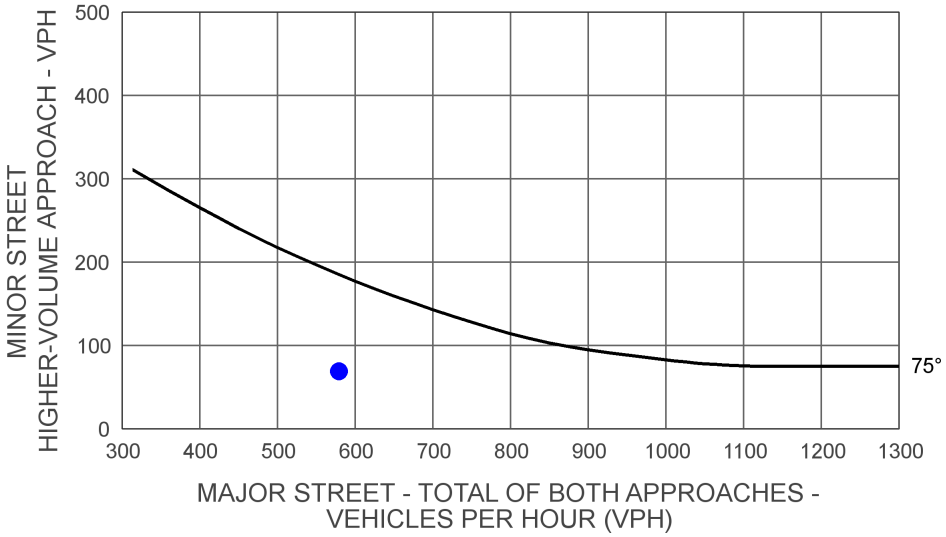


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 6

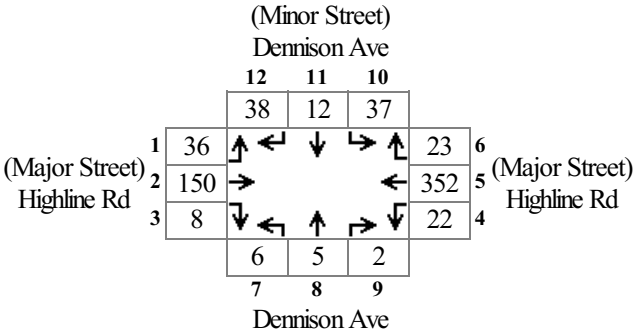


Major Total: 579
Minor High Volume: 69

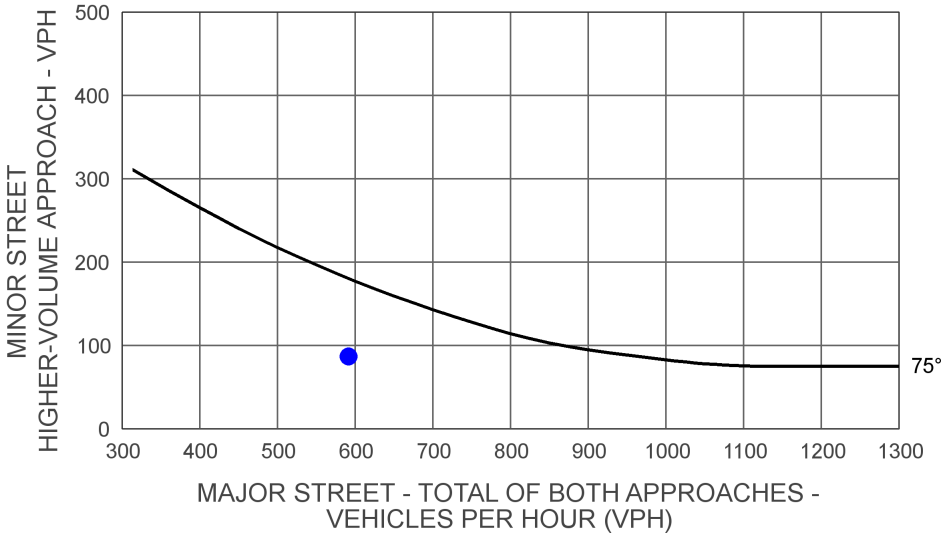


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 6

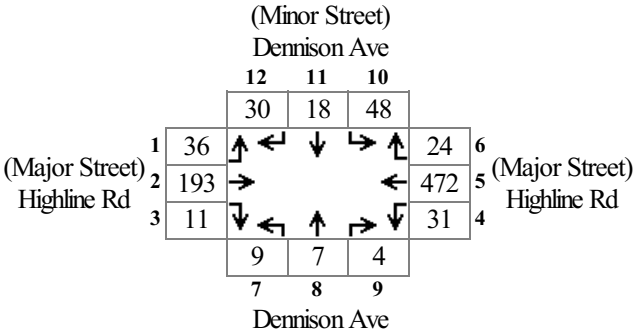


Major Total: 591
Minor High Volume: 87

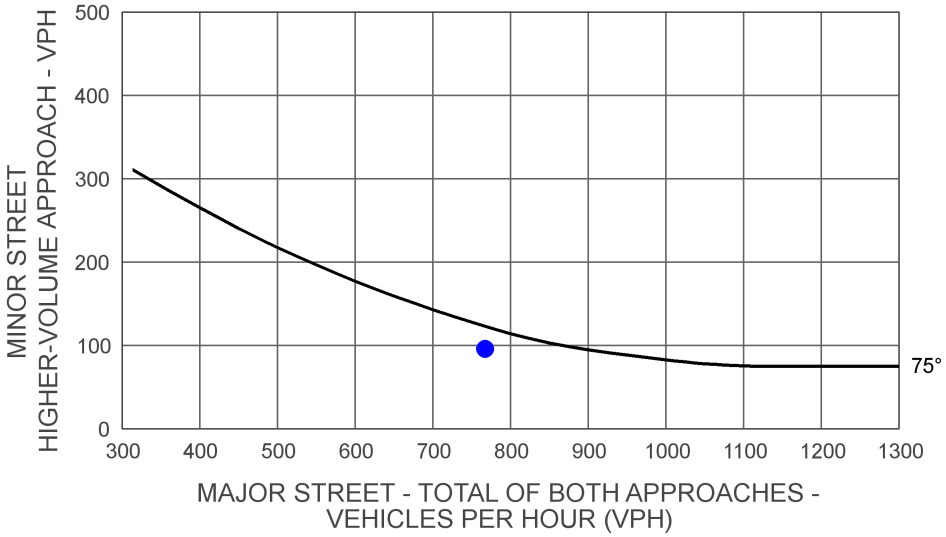


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 6

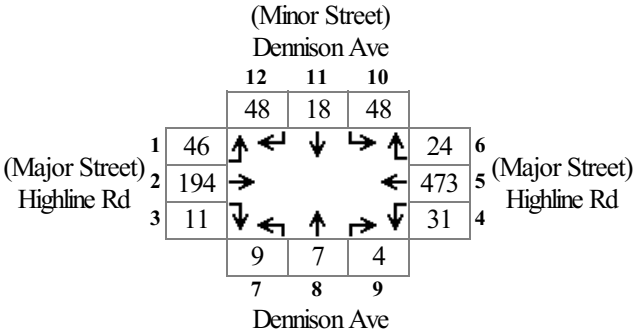


Major Total: 767
Minor High Volume: 96

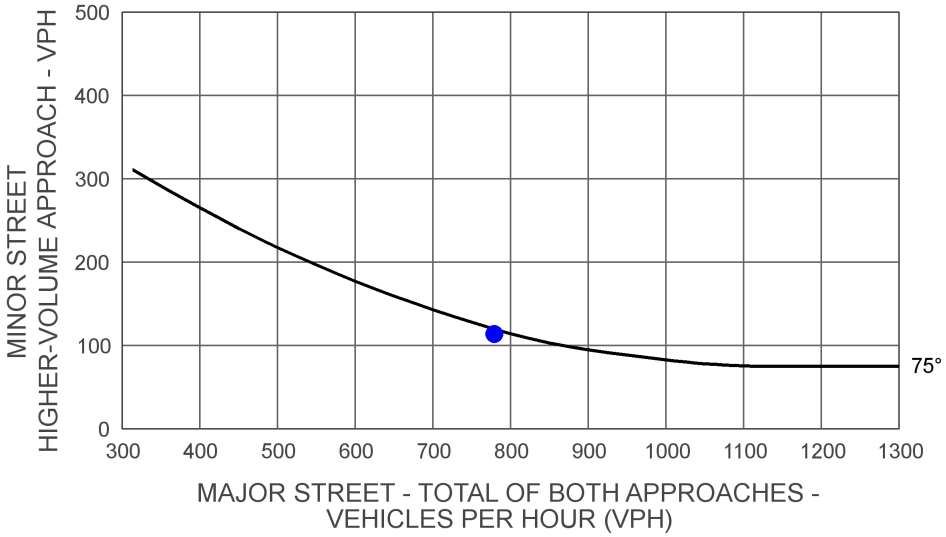


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 6



Major Total: 779
Minor High Volume: 114



Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	195	160	0	7	70	2	5	3	2	17	2	66
Future Vol, veh/h	195	160	0	7	70	2	5	3	2	17	2	66
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	368	302	0	13	132	4	9	6	4	32	4	125

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	302	0	0	1263	1200	302	1202	1198	134
Stage 1	-	-	-	-	-	-	1038	1038	-	160	160	-
Stage 2	-	-	-	-	-	-	225	162	-	1042	1038	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1448	-	-	1259	-	-	147	185	738	161	186	915
Stage 1	-	-	-	-	-	-	279	308	-	842	766	-
Stage 2	-	-	-	-	-	-	778	764	-	277	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1259	-	-	94	127	738	117	128	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	127	-	117	128	-
Stage 1	-	-	-	-	-	-	194	214	-	585	758	-
Stage 2	-	-	-	-	-	-	661	756	-	186	214	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.6	0.7	38.5	22.4
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	1448	-	-	1259	-	-	365
HCM Lane V/C Ratio	0.15	0.254	-	-	0.01	-	-	0.439
HCM Control Delay (s)	38.5	8.3	0	-	7.9	0	-	22.4
HCM Lane LOS	E	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	1	-	-	0	-	-	2.2

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	210	162	0	7	70	2	5	3	2	17	2	71
Future Vol, veh/h	210	162	0	7	70	2	5	3	2	17	2	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	396	306	0	13	132	4	9	6	4	32	4	134

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	306	0	0	1327	1260	306	1263	1258	134
Stage 1	-	-	-	-	-	-	1098	1098	-	160	160	-
Stage 2	-	-	-	-	-	-	229	162	-	1103	1098	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1448	-	-	1255	-	-	132	170	734	147	171	915
Stage 1	-	-	-	-	-	-	258	289	-	842	766	-
Stage 2	-	-	-	-	-	-	774	764	-	256	289	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1255	-	-	81	113	734	104	113	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	113	-	104	113	-
Stage 1	-	-	-	-	-	-	173	194	-	565	758	-
Stage 2	-	-	-	-	-	-	650	756	-	166	194	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.8	0.7	44.4	24.8
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	110	1448	-	-	1255	-	-	348
HCM Lane V/C Ratio	0.172	0.274	-	-	0.011	-	-	0.488
HCM Control Delay (s)	44.4	8.4	0	-	7.9	0	-	24.8
HCM Lane LOS	E	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	1.1	-	-	0	-	-	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	162	0	7	70	2	5	3	2	17	2	71
Future Volume (veh/h)	210	162	0	7	70	2	5	3	2	17	2	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	396	306	0	13	132	4	9	6	4	32	4	134
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	604	358	0	153	908	26	264	147	64	174	26	230
Arrive On Green	0.52	0.52	0.00	0.52	0.52	0.52	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	805	683	0	51	1732	49	500	796	346	195	140	1244
Grp Volume(v), veh/h	702	0	0	149	0	0	19	0	0	170	0	0
Grp Sat Flow(s),veh/h/ln	1488	0	0	1832	0	0	1642	0	0	1579	0	0
Q Serve(g_s), s	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	0.0	1.3	0.0	0.0	0.3	0.0	0.0	3.0	0.0	0.0
Prop In Lane	0.56		0.00	0.09		0.03	0.47		0.21	0.19		0.79
Lane Grp Cap(c), veh/h	962	0	0	1087	0	0	475	0	0	430	0	0
V/C Ratio(X)	0.73	0.00	0.00	0.14	0.00	0.00	0.04	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1046	0	0	1188	0	0	4207	0	0	4380	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	3.8	0.0	0.0	10.4	0.0	0.0	11.5	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	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	5.7	0.0	0.0	0.7	0.0	0.0	0.1	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	8.9	0.0	0.0	3.9	0.0	0.0	10.4	0.0	0.0	12.1	0.0	0.0
LnGrp LOS	A			A			B			B		
Approach Vol, veh/h		702			149			19			170	
Approach Delay, s/veh		8.9			3.9			10.4			12.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		10.2		20.7		10.2		20.7
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		84.5		18.0		84.5		18.0
Max Q Clear Time (g_c+I1), s		2.3		15.0		5.0		3.3
Green Ext Time (p_c), s		0.7		1.2		0.7		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	48

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	222	223	0	8	94	9	6	4	2	40	2	78
Future Vol, veh/h	222	223	0	8	94	9	6	4	2	40	2	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	30	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	419	421	0	15	177	17	11	8	4	75	4	147

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	194	0	0	421	0	0	1550	1483	421	1480	1474	186
Stage 1	-	-	-	-	-	-	1258	1258	-	216	216	-
Stage 2	-	-	-	-	-	-	292	225	-	1264	1258	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1379	-	-	1138	-	-	93	125	632	104	127	856
Stage 1	-	-	-	-	-	-	209	242	-	786	724	-
Stage 2	-	-	-	-	-	-	716	718	-	208	242	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1379	-	-	1138	-	-	51	74	632	~ 66	75	856
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	74	-	~ 66	75	-
Stage 1	-	-	-	-	-	-	126	146	-	474	713	-
Stage 2	-	-	-	-	-	-	581	707	-	118	146	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.4	0.6	80.8	250.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	69	1379	-	-	1138	-	-	166
HCM Lane V/C Ratio	0.328	0.304	-	-	0.013	-	-	1.364
HCM Control Delay (s)	80.8	8.7	0	-	8.2	0	-	250.1
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.2	1.3	-	-	0	-	-	13.7

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	63.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	237	225	0	8	94	9	6	4	2	40	2	83
Future Vol, veh/h	237	225	0	8	94	9	6	4	2	40	2	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	447	425	0	15	177	17	11	8	4	75	4	157

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	194	0	0	425	0	0	1615	1544	425	1541	1535	186
Stage 1	-	-	-	-	-	-	1319	1319	-	216	216	-
Stage 2	-	-	-	-	-	-	296	225	-	1325	1319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1379	-	-	1134	-	-	83	115	629	94	116	856
Stage 1	-	-	-	-	-	-	193	227	-	786	724	-
Stage 2	-	-	-	-	-	-	712	718	-	192	227	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1379	-	-	1134	-	-	43	65	629	~ 57	66	856
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	65	-	~ 57	66	-
Stage 1	-	-	-	-	-	-	111	131	-	453	713	-
Stage 2	-	-	-	-	-	-	570	707	-	104	131	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.5	0.6	99.9	$ 336.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	59	1379	-	-	1134	-	-	151
HCM Lane V/C Ratio	0.384	0.324	-	-	0.013	-	-	1.562
HCM Control Delay (s)	99.9	8.9	0	-	8.2	0	-	$ 336.2
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.4	1.4	-	-	0	-	-	16.1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	225	0	8	94	9	6	4	2	40	2	83
Future Volume (veh/h)	237	225	0	8	94	9	6	4	2	40	2	83
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1750	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	447	425	0	15	177	17	11	8	4	75	4	157
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	549	377	0	134	848	77	282	180	65	219	34	231
Arrive On Green	0.52	0.52	0.00	0.52	0.52	0.52	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	757	728	0	44	1637	149	577	806	291	369	152	1036
Grp Volume(v), veh/h	872	0	0	209	0	0	23	0	0	236	0	0
Grp Sat Flow(s),veh/h/ln	1485	0	0	1829	0	0	1674	0	0	1557	0	0
Q Serve(g_s), s	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	18.0	0.0	0.0	2.2	0.0	0.0	0.3	0.0	0.0	4.7	0.0	0.0
Prop In Lane	0.51		0.00	0.07		0.08	0.48		0.17	0.32		0.67
Lane Grp Cap(c), veh/h	926	0	0	1058	0	0	527	0	0	484	0	0
V/C Ratio(X)	0.94	0.00	0.00	0.20	0.00	0.00	0.04	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	926	0	0	1058	0	0	3733	0	0	3846	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	4.6	0.0	0.0	10.6	0.0	0.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	17.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.8	0.0	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	12.4	0.0	0.0	1.1	0.0	0.0	0.2	0.0	0.0	2.1	0.0	0.0
LnGrp Delay(d),s/veh	26.5	0.0	0.0	4.6	0.0	0.0	10.7	0.0	0.0	13.0	0.0	0.0
LnGrp LOS	C			A			B			B		
Approach Vol, veh/h		872			209			23			236	
Approach Delay, s/veh		26.5			4.6			10.7			13.0	
Approach LOS		C			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		12.3		22.5		12.3		22.5
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		84.5		18.0		84.5		18.0
Max Q Clear Time (g_c+I1), s		2.3		20.0		6.7		4.2
Green Ext Time (p_c), s		1.0		0.0		1.0		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	510.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	301	288	0	11	126	10	9	5	4	50	4	116
Future Vol, veh/h	301	288	0	11	126	10	9	5	4	50	4	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	568	543	0	21	238	19	17	9	8	94	8	219

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	543	0	0	2081	1977	543	1977	1968	247
Stage 1	-	-	-	-	-	-	1679	1679	-	289	289	-
Stage 2	-	-	-	-	-	-	402	298	-	1688	1679	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1308	-	-	1026	-	-	39	62	540	~ 46	63	792
Stage 1	-	-	-	-	-	-	120	151	-	719	673	-
Stage 2	-	-	-	-	-	-	625	667	-	119	151	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1308	-	-	1026	-	-	~ 11	23	540	~ 16	23	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 11	23	-	~ 16	23	-
Stage 1	-	-	-	-	-	-	45	57	-	272	657	-
Stage 2	-	-	-	-	-	-	436	651	-	~ 37	57	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5	0.6	$ 932	$ 2658.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	17	1308	-	-	1026	-	-	49
HCM Lane V/C Ratio	1.998	0.434	-	-	0.02	-	-	6.546
HCM Control Delay (s)	$ 932	9.8	0	-	8.6	0	-	$ 2658.1
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.8	2.2	-	-	0.1	-	-	37.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	634.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	316	290	0	11	126	10	9	5	4	50	4	121
Future Vol, veh/h	316	290	0	11	126	10	9	5	4	50	4	121
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	596	547	0	21	238	19	17	9	8	94	8	228

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	547	0	0	2147	2038	547	2037	2029	247
Stage 1	-	-	-	-	-	-	1740	1740	-	289	289	-
Stage 2	-	-	-	-	-	-	407	298	-	1748	1740	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1308	-	-	1022	-	-	35	57	537	~ 42	57	792
Stage 1	-	-	-	-	-	-	111	141	-	719	673	-
Stage 2	-	-	-	-	-	-	621	667	-	109	141	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1308	-	-	1022	-	-	~ 8	19	537	~ 13	19	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 8	19	-	~ 13	19	-
Stage 1	-	-	-	-	-	-	38	49	-	248	657	-
Stage 2	-	-	-	-	-	-	426	651	-	~ 30	49	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.2	0.6	$ 1320.9	$ 3273.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	13	1308	-	-	1022	-	-	42
HCM Lane V/C Ratio	2.612	0.456	-	-	0.02	-	-	7.862
HCM Control Delay (s)	$ 1320.9	10	0	-	8.6	0	-	$ 3273.7
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	5.1	2.4	-	-	0.1	-	-	39.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

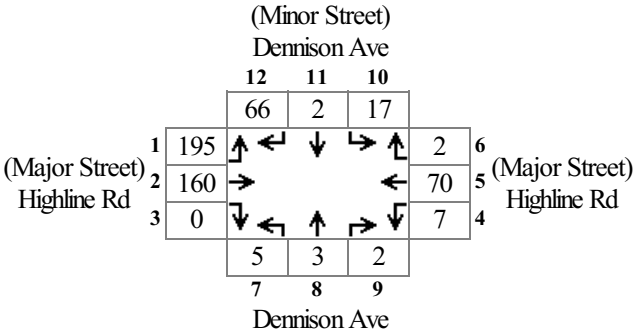
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	290	0	11	126	10	9	5	4	50	4	121
Future Volume (veh/h)	316	290	0	11	126	10	9	5	4	50	4	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1750	1750	1863	1750	1750	1863	1750	1750	1863	1750
Adj Flow Rate, veh/h	596	547	0	21	238	19	17	9	8	94	8	228
Adj No. of Lanes	1	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	740	891	0	127	770	58	317	163	103	217	43	305
Arrive On Green	0.48	0.48	0.00	0.48	0.48	0.48	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1030	1863	0	50	1610	122	613	575	365	331	151	1078
Grp Volume(v), veh/h	596	547	0	278	0	0	34	0	0	330	0	0
Grp Sat Flow(s),veh/h/ln	1030	1863	0	1782	0	0	1553	0	0	1560	0	0
Q Serve(g_s), s	14.5	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0
Cycle Q Clear(g_c), s	18.0	8.2	0.0	3.5	0.0	0.0	0.5	0.0	0.0	7.2	0.0	0.0
Prop In Lane	1.00		0.00	0.08		0.07	0.50		0.24	0.28		0.69
Lane Grp Cap(c), veh/h	740	891	0	955	0	0	583	0	0	564	0	0
V/C Ratio(X)	0.81	0.61	0.00	0.29	0.00	0.00	0.06	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	740	891	0	955	0	0	3272	0	0	3563	0	0
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	7.3	0.0	6.0	0.0	0.0	9.9	0.0	0.0	12.2	0.0	0.0
Incr Delay (d2), s/veh	6.5	1.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	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	7.3	4.4	0.0	1.8	0.0	0.0	0.3	0.0	0.0	3.2	0.0	0.0
LnGrp Delay(d),s/veh	16.4	8.5	0.0	6.2	0.0	0.0	9.9	0.0	0.0	13.2	0.0	0.0
LnGrp LOS	B	A		A			A			B		
Approach Vol, veh/h		1143			278			34			330	
Approach Delay, s/veh		12.6			6.2			9.9			13.2	
Approach LOS		B			A			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.1		22.5		15.1		22.5
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		84.5		18.0		84.5		18.0
Max Q Clear Time (g_c+I1), s		2.5		20.0		9.2		5.5
Green Ext Time (p_c), s		1.5		0.0		1.5		5.7

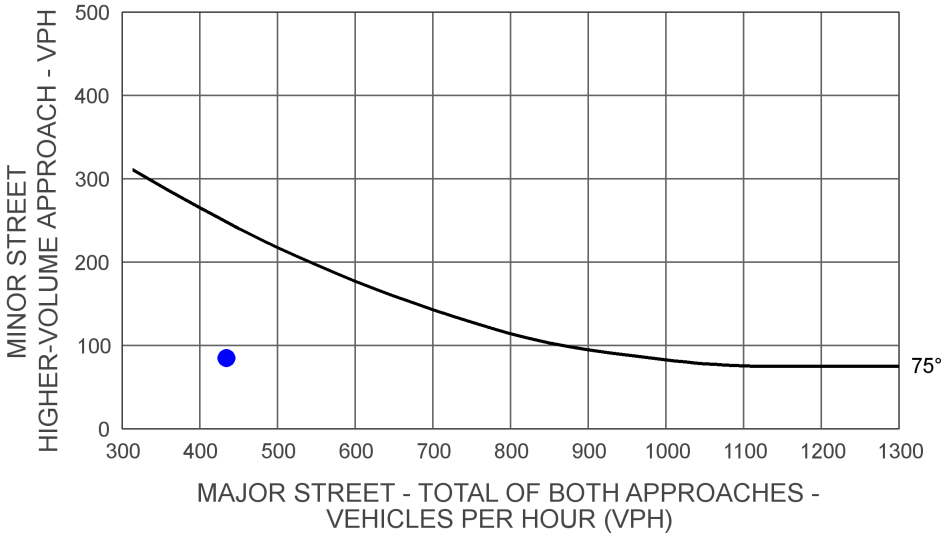
Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 6

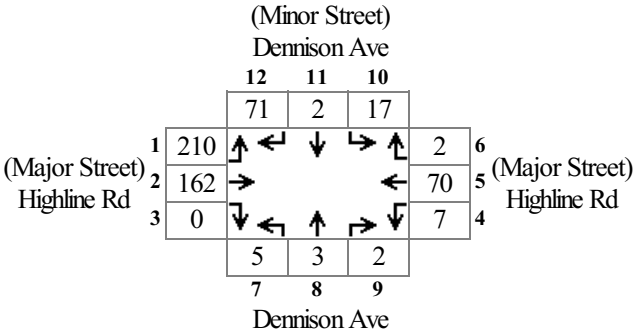


Major Total: 434
Minor High Volume: 85

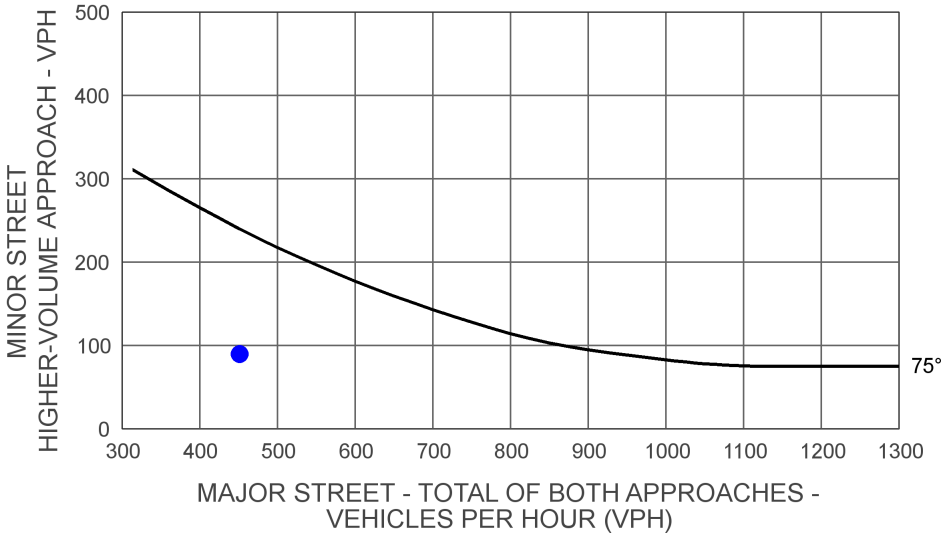


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 6

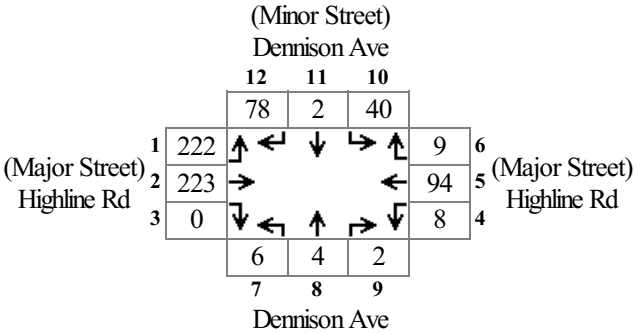


Major Total: 451
Minor High Volume: 90

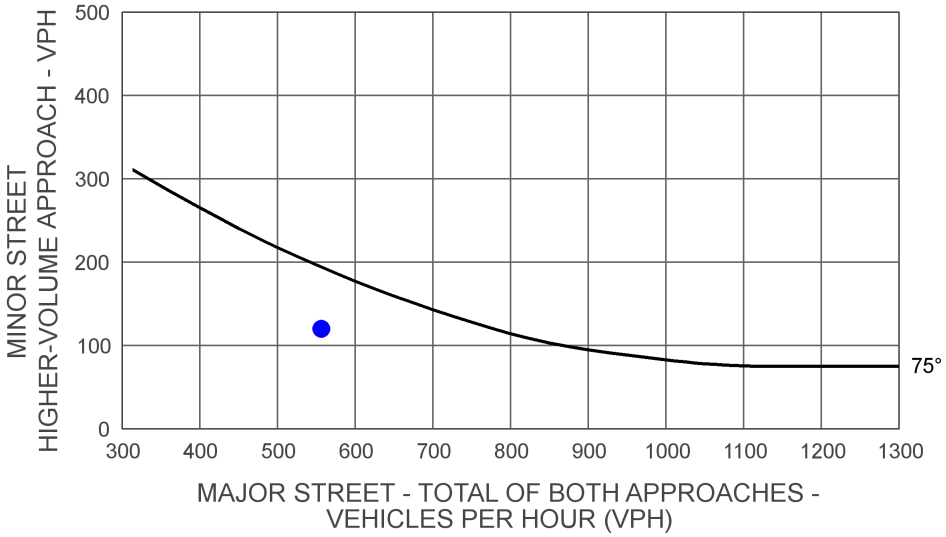


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 6

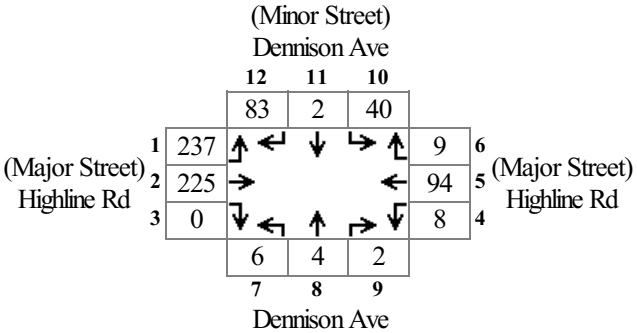


Major Total: 556
Minor High Volume: 120

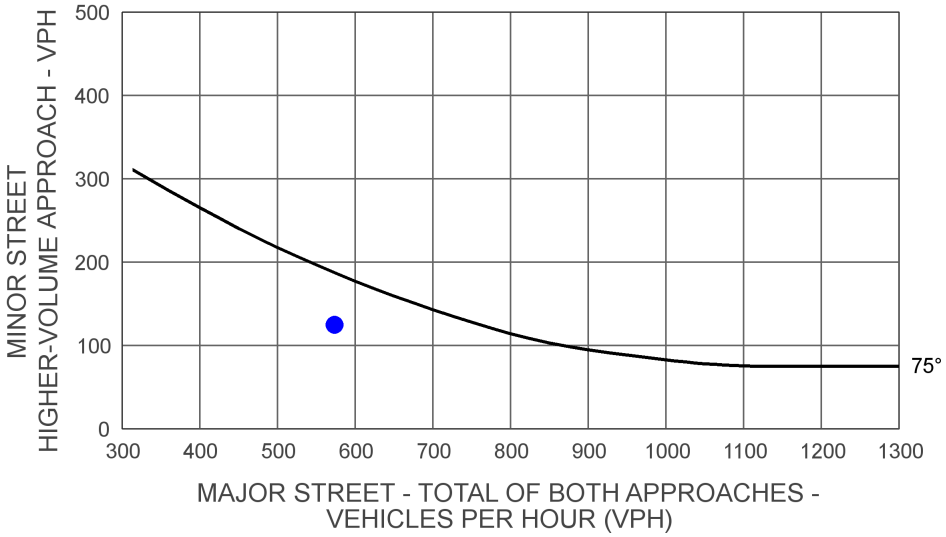


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 6

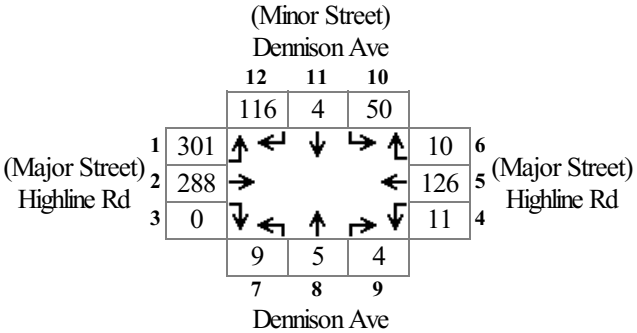


Major Total: 573
Minor High Volume: 125

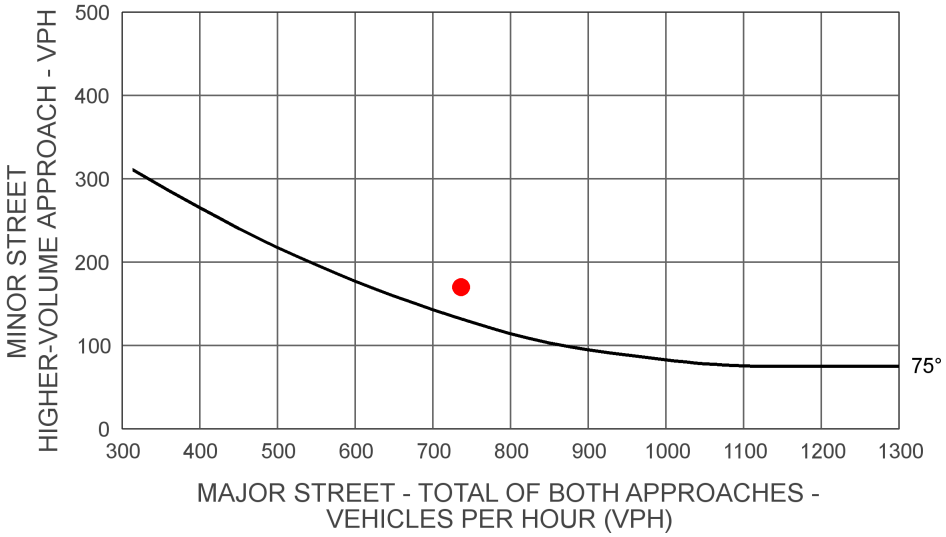


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 6

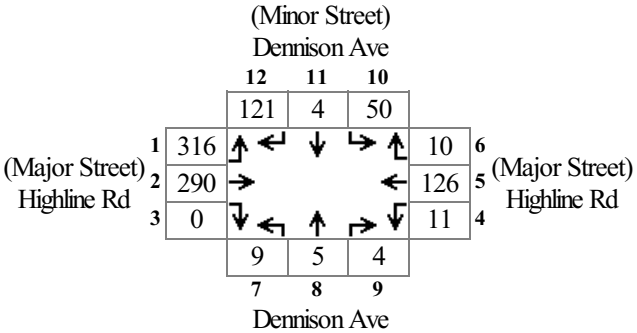


Major Total: 736
Minor High Volume: 170

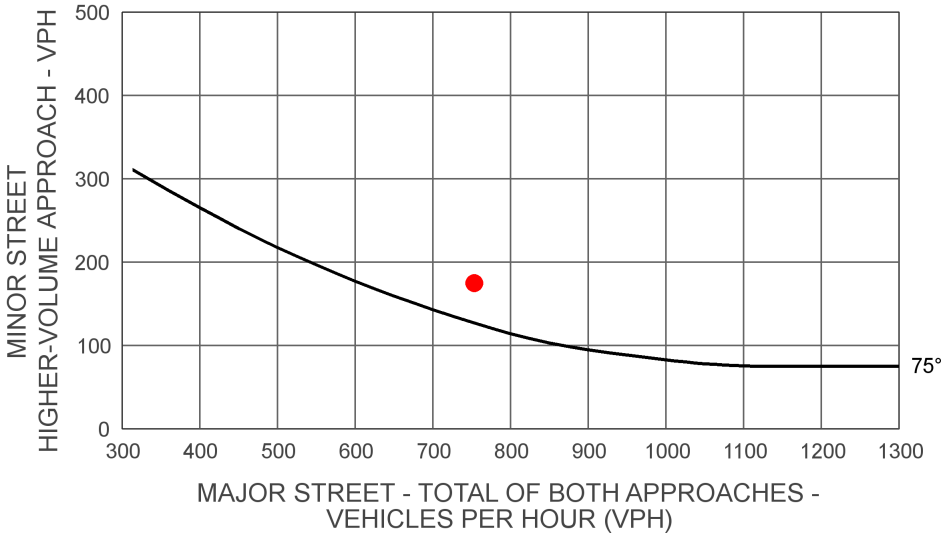


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 6



Major Total: 753
Minor High Volume: 175



VEHICLE TURN MOVEMENT DATA

Location ID: 1
North/South: Tucker Rd
East/West: Tehachapi Blvd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	25	37	13	13	36	15	27	79	16	8	34	48	351
7:45	19	33	7	15	20	16	25	79	12	15	54	60	355
8:00	22	39	9	21	13	11	13	55	10	11	40	48	292
8:15	24	40	14	10	29	12	9	59	10	11	45	53	316
8:30													
8:45													
Total Volume:	90	149	43	59	98	54	74	272	48	45	173	209	1314
Approach %	32%	53%	15%	28%	46%	26%	19%	69%	12%	11%	41%	49%	

Peak Hr Begin:	7:30												
PHV	90	149	43	59	98	54	74	272	48	45	173	209	1314
PHF	0.904			0.824			0.807			0.828			0.925

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	79	100	28	27	53	41	35	68	39	23	42	45	580
16:45	120	118	35	29	55	45	26	54	40	20	51	31	624
17:00	93	95	18	35	94	42	26	53	41	26	47	23	593
17:15	126	109	18	30	51	27	33	41	36	25	56	20	572
17:30													
17:45													
Total Volume:	418	422	99	121	253	155	120	216	156	94	196	119	2369
Approach %	45%	45%	11%	23%	48%	29%	24%	44%	32%	23%	48%	29%	

Peak Hr Begin:	16:30												
PHV	418	422	99	121	253	155	120	216	156	94	196	119	2369
PHF	0.860			0.773			0.866			0.930			0.949

Location ID: 2
North/South: Tucker Rd
East/West: Valley Blvd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	39	8	9	15	56	7	16	23	7	8	34	36	258
7:45	27	17	20	19	44	7	26	30	9	2	22	47	270
8:00	35	18	16	2	45	9	13	27	9	7	50	53	284
8:15	29	20	13	13	39	10	15	24	10	8	38	39	258
8:30													
8:45													
Total Volume:	130	63	58	49	184	33	70	104	35	25	144	175	1070
Approach %	52%	25%	23%	18%	69%	12%	33%	50%	17%	7%	42%	51%	

Peak Hr Begin:	7:30												
PHV	130	63	58	49	184	33	70	104	35	25	144	175	1070
PHF	0.909			0.853			0.804			0.782			0.942

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	67	62	43	30	75	29	61	37	22	16	47	53	542
16:45	76	67	51	20	70	22	45	51	20	11	61	50	544
17:00	75	53	45	27	76	28	47	29	20	20	70	59	549
17:15	78	72	38	16	85	31	52	41	16	14	61	34	538
17:30													
17:45													
Total Volume:	296	254	177	93	306	110	205	158	78	61	239	196	2173
Approach %	41%	35%	24%	18%	60%	22%	46%	36%	18%	12%	48%	40%	

Location ID: 3
North/South: Curry St
East/West: Valley Blvd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	6	13	0	2	35	10	6	19	17	11	13	18	150
7:45	5	14	1	5	16	5	5	23	18	11	12	16	131
8:00	5	7	2	2	12	4	7	14	15	12	26	18	124
8:15	10	24	3	2	20	5	5	16	16	20	20	12	153
8:30													
8:45													
Total Volume:	26	58	6	11	83	24	23	72	66	54	71	64	558
Approach %	29%	64%	7%	9%	70%	20%	14%	45%	41%	29%	38%	34%	

Peak Hr Begin:	7:30												
PHV	26	58	6	11	83	24	23	72	66	54	71	64	558
PHF	0.608			0.628			0.875			0.844			0.912

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	37	25	7	7	41	11	6	23	22	18	43	17	257
16:45	22	24	4	7	49	9	18	32	22	20	49	24	280
17:00	36	40	5	8	45	17	9	23	15	24	38	20	280
17:15	28	32	2	3	35	11	9	25	16	19	30	25	235
17:30													
17:45													
Total Volume:	123	121	18	25	170	48	42	103	75	81	160	86	1052
Approach %	47%	46%	7%	10%	70%	20%	19%	47%	34%	25%	49%	26%	

Location ID: 4
North/South: Tucker Rd
East/West: Highline Rd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	3	0	13	8	35	0	0	0	0	0	29	16	104
7:45	5	1	6	14	18	3	1	2	0	1	28	26	105
8:00	7	1	11	9	18	0	0	2	0	0	28	19	95
8:15	5	5	9	8	8	1	0	2	0	0	31	19	88
8:30													
8:45													
Total Volume:	20	7	39	39	79	4	1	6	0	1	116	80	392
Approach %	30%	11%	59%	32%	65%	3%	14%	86%	0%	1%	59%	41%	

Peak Hr Begin:	7:30												
PHV	20	7	39	39	79	4	1	6	0	1	116	80	392
PHF	0.868			0.709			0.583			0.895			0.933

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	31	1	16	20	32	0	0	2	0	0	22	19	143
16:45	26	2	20	19	48	2	0	1	0	0	22	11	151
17:00	29	6	20	18	32	1	0	1	2	1	24	16	150
17:15	31	9	19	23	33	9	1	4	3	0	21	15	168
17:30													
17:45													
Total Volume:	117	18	75	80	145	12	1	8	5	1	89	61	612
Approach %	56%	9%	36%	34%	61%	5%	7%	57%	36%	1%	59%	40%	

Location ID: 5
North/South: Curry St
East/West: Highline Rd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	13	2	7	6	23	1	0	0	0	0	34	6	92
7:45	11	1	6	6	22	0	0	1	0	0	21	12	80
8:00	5	1	8	1	21	0	0	2	0	1	27	8	74
8:15	5	0	6	6	9	0	0	1	1	0	27	18	73
8:30													
8:45													
Total Volume:	34	4	27	19	75	1	0	4	1	1	109	44	319
Approach %	52%	6%	42%	20%	79%	1%	0%	80%	20%	1%	71%	29%	

Peak Hr Begin:	7:30												
PHV	34	4	27	19	75	1	0	4	1	1	109	44	319
PHF	0.739			0.792			0.625			0.856			0.867

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	9	0	8	19	49	0	1	1	0	1	31	7	126
16:45	9	1	2	26	59	0	1	2	1	0	33	10	144
17:00	14	2	3	25	36	0	0	1	0	0	36	9	126
17:15	20	0	5	22	46	2	0	1	0	3	17	15	131
17:30													
17:45													
Total Volume:	52	3	18	92	190	2	2	5	1	4	117	41	527
Approach %	71%	4%	25%	32%	67%	1%	25%	63%	13%	2%	72%	25%	

Location ID: 6
North/South: Dennison Rd
East/West: Highline Rd

Date: 2/19/2020
City: Tehachapi, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	10	0	6	0	19	1	0	1	2	0	39	3	81
7:45	4	0	0	0	17	1	0	1	2	0	25	5	55
8:00	1	0	1	1	11	3	1	0	0	0	26	11	55
8:15	6	0	2	0	11	2	0	0	1	0	26	6	54
8:30													
8:45													
Total Volume:	21	0	9	1	58	7	1	2	5	0	116	25	245
Approach %	70%	0%	30%	2%	88%	11%	13%	25%	63%	0%	82%	18%	

Peak Hr Begin:	7:30												
PHV	21	0	9	1	58	7	1	2	5	0	116	25	245
PHF	0.469			0.825			0.667			0.839			0.756

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	5	3	3	0	73	5	0	0	0	1	29	7	126
16:45	5	3	2	1	69	6	0	1	1	6	25	6	125
17:00	3	1	5	0	61	4	0	1	4	2	24	6	111
17:15	4	2	5	0	66	4	0	2	1	0	19	4	107
17:30													
17:45													
Total Volume:	17	9	15	1	269	19	0	4	6	9	97	23	469
Approach %	41%	22%	37%	0%	93%	7%	0%	40%	60%	7%	75%	18%	

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

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

Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

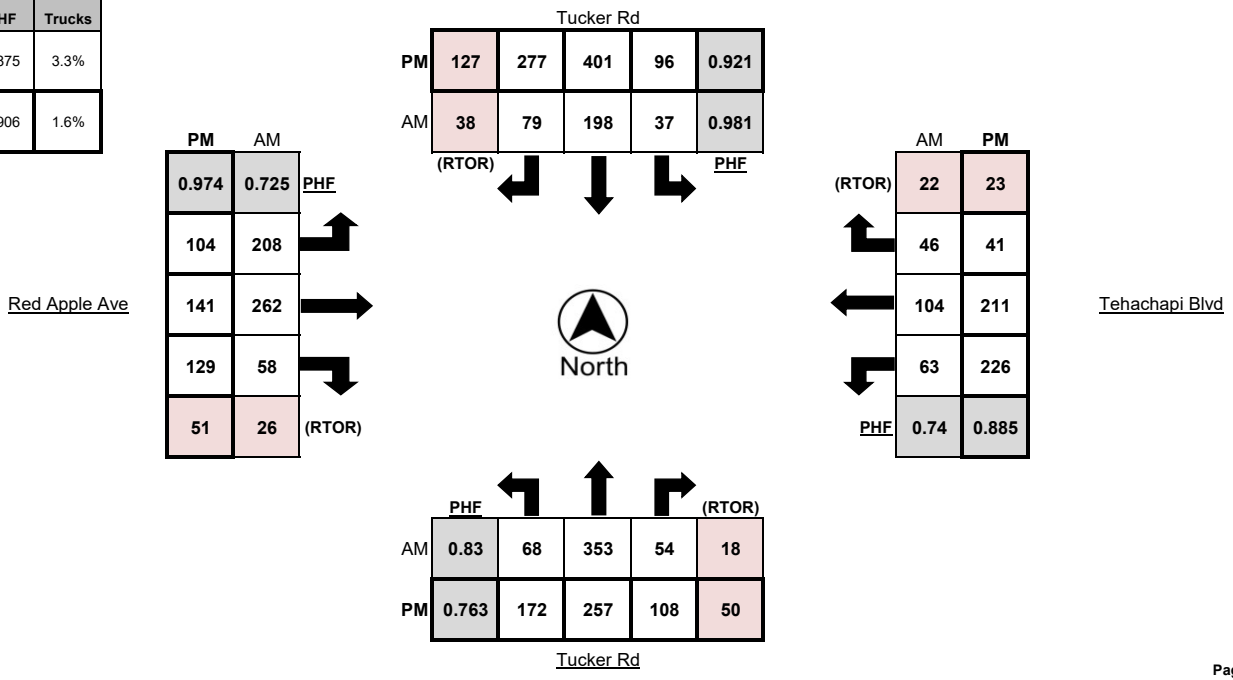
LOCATION Tehachapi Blvd @ Tucker Rd (SR202)
LATITUDE 35.1317
COUNTY Kern
LONGITUDE -118.4673
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	20	108	15	5	4	7	49	20	11	5	66	102	14	5	3	10	16	10	4	6
7:15 AM - 7:30 AM	18	89	13	6	2	7	52	19	9	5	45	81	16	8	0	15	40	12	6	2
7:30 AM - 7:45 AM	15	77	12	4	2	10	51	19	11	4	40	28	15	6	1	17	41	14	8	3
7:45 AM - 8:00 AM	15	79	14	3	0	13	46	21	7	12	57	51	13	7	1	21	7	10	4	0
8:00 AM - 8:15 AM	14	85	12	4	5	10	44	15	6	6	37	27	7	4	1	17	25	10	5	6
8:15 AM - 8:30 AM	27	51	13	5	2	16	36	11	7	10	38	39	18	6	1	20	14	14	8	2
8:30 AM - 8:45 AM	29	72	13	6	3	16	41	20	8	2	41	27	19	11	1	22	26	12	6	3
8:45 AM - 9:00 AM	30	65	26	9	2	10	33	20	12	3	37	58	22	13	2	27	37	10	4	1
TOTAL	**168**	**626**	**118**	**42**	**20**	**89**	**352**	**145**	**71**	**47**	**361**	**413**	**124**	**60**	**10**	**149**	**206**	**92**	**45**	**23**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	52	87	37	14	4	30	99	61	32	3	25	36	35	12	2	64	62	9	4	0
4:15 PM - 4:30 PM	43	71	32	13	3	21	86	76	35	4	21	40	33	15	5	65	49	14	8	1
4:30 PM - 4:45 PM	45	50	22	11	1	25	104	62	31	3	34	28	26	11	0	52	49	6	3	1
4:45 PM - 5:00 PM	32	49	17	12	2	20	112	78	29	3	24	37	35	13	2	45	51	12	8	1
5:00 PM - 5:15 PM	41	70	27	14	2	24	102	111	31	2	26	34	23	10	1	58	57	10	7	1
5:15 PM - 5:30 PM	40	37	24	15	1	27	121	107	53	3	24	46	23	11	3	39	43	13	8	0
5:30 PM - 5:45 PM	42	47	20	13	0	18	87	77	34	2	11	40	18	12	0	42	45	5	2	2
5:45 PM - 6:00 PM	36	41	17	11	1	24	81	65	32	1	22	44	20	9	4	39	42	4	2	0
TOTAL	**331**	**452**	**196**	**103**	**14**	**189**	**792**	**637**	**277**	**21**	**187**	**305**	**213**	**93**	**17**	**404**	**398**	**73**	**42**	**6**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	68	353	54	18	8	37	198	79	38	26	208	262	58	26	5	63	104	46	22	11
4:00 PM - 5:00 PM	172	257	108	50	10	96	401	277	127	13	104	141	129	51	9	226	211	41	23	3

	PHF	Trucks
AM	0.875	3.3%
PM	0.906	1.6%



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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

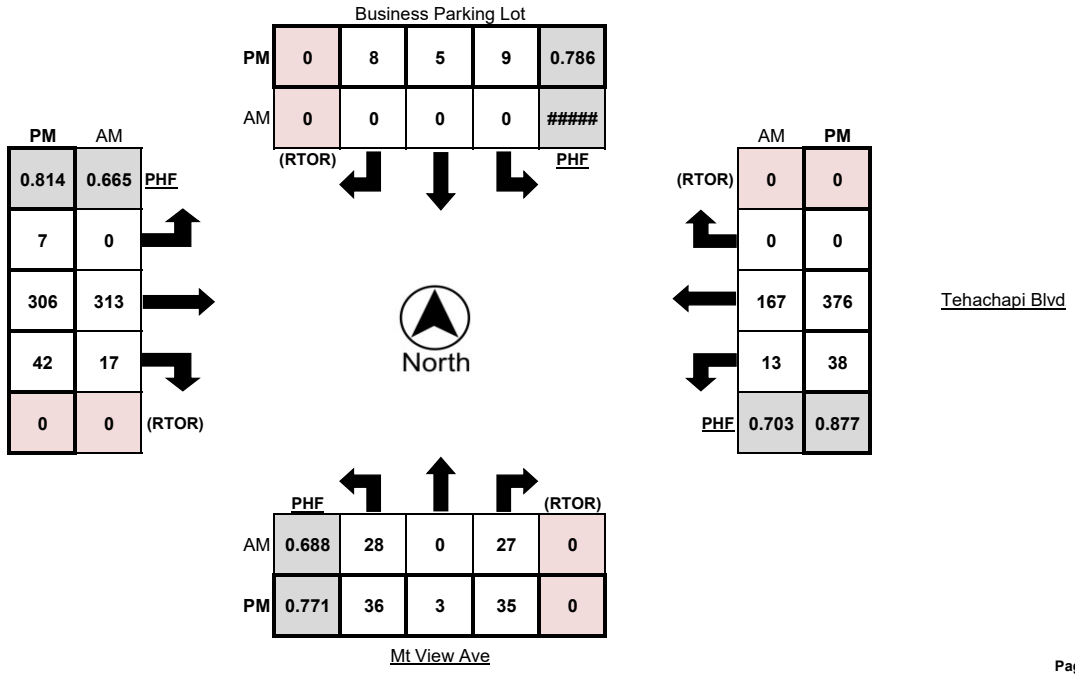
LOCATION Tehachapi Blvd @ Mt View Ave
LATITUDE 35.1318
COUNTY Kern
LONGITUDE -118.4599
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	7	0	4	0	1	0	0	0	0	0	0	121	3	0	3	5	35	0	0	4
7:15 AM - 7:30 AM	11	0	9	0	0	0	0	0	0	0	0	98	5	0	1	2	60	0	0	4
7:30 AM - 7:45 AM	3	0	3	0	0	0	0	0	0	0	0	42	2	0	1	6	58	0	0	3
7:45 AM - 8:00 AM	7	0	11	0	0	0	0	0	0	0	0	52	7	0	0	0	14	0	0	1
8:00 AM - 8:15 AM	10	1	7	0	2	0	0	0	0	0	0	42	2	0	0	3	37	0	0	5
8:15 AM - 8:30 AM	5	0	2	0	0	0	0	0	0	0	0	55	6	0	0	3	46	0	0	2
8:30 AM - 8:45 AM	4	0	1	0	0	0	0	2	0	0	3	53	8	0	3	5	57	0	0	1
8:45 AM - 9:00 AM	11	2	5	0	0	0	0	0	0	0	2	74	5	0	2	6	58	0	0	2
TOTAL	**58**	**3**	**42**	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**5**	**537**	**38**	**0**	**10**	**30**	**365**	**0**	**0**	**22**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	11	1	9	0	2	3	1	0	0	0	4	95	10	0	5	5	93	0	0	0
4:15 PM - 4:30 PM	9	0	15	0	2	1	1	5	0	0	1	71	13	0	4	11	107	0	0	0
4:30 PM - 4:45 PM	9	1	4	0	0	3	0	2	0	0	2	68	10	0	1	14	89	0	0	1
4:45 PM - 5:00 PM	7	1	7	0	0	2	3	1	0	0	0	72	9	0	1	8	87	0	0	0
5:00 PM - 5:15 PM	3	1	9	0	0	0	2	2	0	0	1	63	14	0	1	19	105	0	0	0
5:15 PM - 5:30 PM	10	0	3	0	0	0	1	0	0	0	2	80	8	0	1	5	78	0	0	0
5:30 PM - 5:45 PM	5	0	7	0	0	0	0	0	0	0	2	82	8	0	2	17	93	0	0	1
5:45 PM - 6:00 PM	5	1	4	0	0	0	0	1	0	0	0	77	17	0	2	6	74	0	0	0
TOTAL	**59**	**5**	**58**	**0**	**4**	**9**	**8**	**11**	**0**	**0**	**12**	**608**	**89**	**0**	**17**	**85**	**726**	**0**	**0**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	28	0	27	0	1	0	0	0	0	0	0	313	17	0	5	13	167	0	0	12
4:00 PM - 5:00 PM	36	3	35	0	4	9	5	8	0	0	7	306	42	0	11	38	376	0	0	1

	PHF	Trucks
AM	0.764	3.2%
PM	0.924	1.8%



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

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

Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

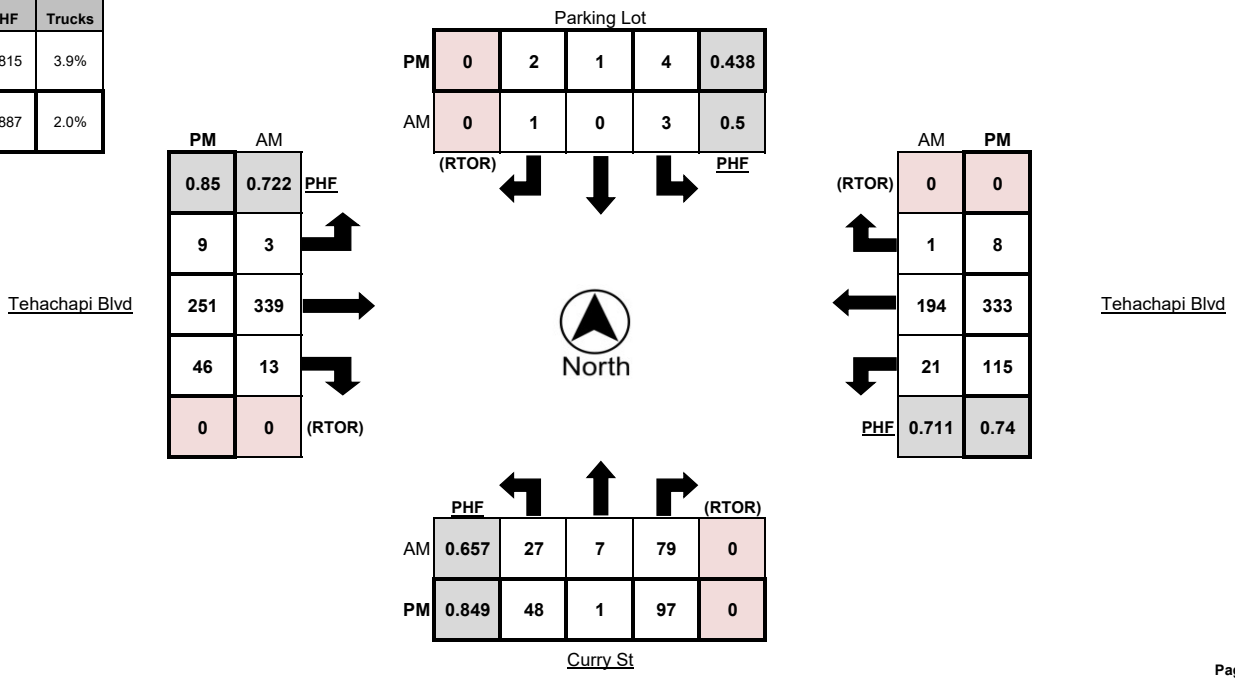
LOCATION Tehachapi Blvd @ Curry St
LATITUDE 35.1323
COUNTY Kern
LONGITUDE -118.4491
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	6	1	8	0	1	2	0	0	0	0	0	122	1	0	4	5	36	0	0	5
7:15 AM - 7:30 AM	12	3	14	0	2	1	0	0	0	0	1	111	5	0	3	3	60	1	0	2
7:30 AM - 7:45 AM	2	1	23	0	0	0	0	1	0	0	1	53	3	0	3	6	70	0	0	5
7:45 AM - 8:00 AM	7	2	34	0	0	0	0	0	0	0	1	53	4	0	0	7	28	0	0	2
8:00 AM - 8:15 AM	5	2	16	0	0	0	0	0	0	0	1	45	5	0	2	6	38	0	0	6
8:15 AM - 8:30 AM	6	1	18	0	1	0	0	0	0	0	1	45	8	0	1	6	38	0	0	1
8:30 AM - 8:45 AM	6	2	15	0	2	0	0	0	0	0	0	45	5	0	1	12	45	1	0	1
8:45 AM - 9:00 AM	10	1	38	0	2	1	0	1	0	0	4	55	6	0	4	16	56	2	0	4
TOTAL	**54**	**13**	**166**	**0**	**8**	**4**	**0**	**2**	**0**	**0**	**9**	**529**	**37**	**0**	**18**	**61**	**371**	**4**	**0**	**26**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	5	3	32	0	1	0	0	0	0	0	7	61	16	0	3	7	81	0	0	4
4:15 PM - 4:30 PM	9	1	20	0	1	2	1	0	0	0	2	72	16	0	4	19	78	2	0	0
4:30 PM - 4:45 PM	12	0	31	0	0	0	0	0	0	0	2	49	8	0	2	25	88	2	0	0
4:45 PM - 5:00 PM	15	0	27	0	2	0	0	0	0	0	3	74	11	0	3	24	62	2	0	1
5:00 PM - 5:15 PM	12	0	19	0	1	2	0	2	0	0	2	56	11	0	1	47	105	2	0	3
5:15 PM - 5:30 PM	7	0	18	0	2	0	0	2	0	0	0	70	7	0	3	23	69	1	0	0
5:30 PM - 5:45 PM	11	1	22	0	0	1	0	0	0	0	0	64	9	0	1	15	79	0	0	2
5:45 PM - 6:00 PM	9	0	12	0	0	0	0	1	0	0	0	56	6	0	2	16	63	0	0	1
TOTAL	**80**	**5**	**181**	**0**	**7**	**5**	**1**	**5**	**0**	**0**	**16**	**502**	**84**	**0**	**19**	**176**	**625**	**9**	**0**	**11**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	27	7	79	0	3	3	0	1	0	0	3	339	13	0	10	21	194	1	0	14
4:15 PM - 5:15 PM	48	1	97	0	4	4	1	2	0	0	9	251	46	0	10	115	333	8	0	4

	PHF	Trucks
AM	0.815	3.9%
PM	0.887	2.0%



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Hanford, CA 93230

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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

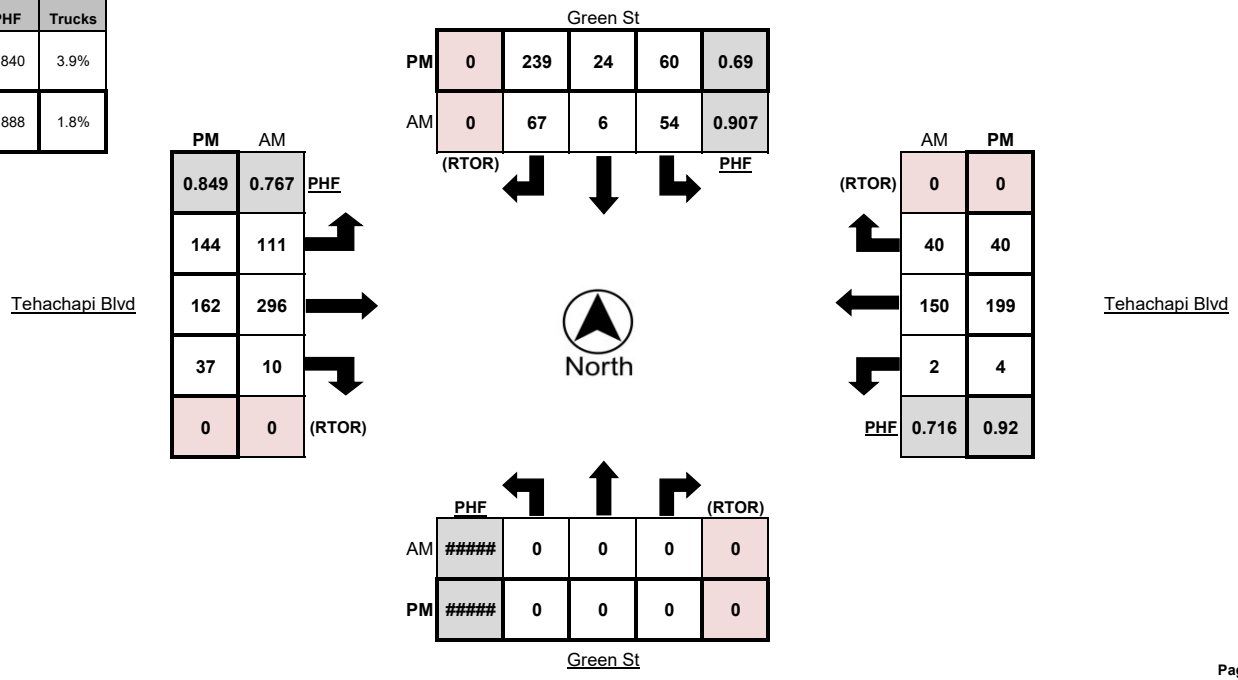
LOCATION Tehachapi Blvd @ Green St
LATITUDE 35.1321
COUNTY Kern
LONGITUDE -118.4475
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	16	2	11	0	0	12	123	1	0	5	0	31	10	0	5
7:15 AM - 7:30 AM	0	0	0	0	0	19	0	15	0	1	20	99	2	0	3	0	51	13	0	2
7:30 AM - 7:45 AM	0	0	0	0	0	10	1	18	0	0	32	37	4	0	3	2	55	10	0	6
7:45 AM - 8:00 AM	0	0	0	0	0	9	3	23	0	1	47	37	3	0	0	0	13	7	0	3
8:00 AM - 8:15 AM	0	0	0	0	0	9	3	21	0	4	21	37	3	0	2	0	23	10	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	5	2	18	0	1	28	33	3	0	2	1	27	5	0	1
8:30 AM - 8:45 AM	0	0	0	0	0	9	4	41	0	1	30	27	3	0	2	1	27	11	0	1
8:45 AM - 9:00 AM	0	0	1	0	0	7	6	26	0	2	47	40	7	0	5	1	43	14	0	3
TOTAL	**0**	**0**	**1**	**0**	**0**	**84**	**21**	**173**	**0**	**10**	**237**	**433**	**26**	**0**	**22**	**5**	**270**	**80**	**0**	**22**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	20	4	48	0	0	30	34	5	0	4	7	60	8	0	2
4:15 PM - 4:30 PM	0	0	0	0	0	11	6	44	0	1	44	39	9	0	4	2	53	11	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	20	4	60	0	0	31	34	7	0	2	0	49	11	0	1
4:45 PM - 5:00 PM	0	0	0	0	0	5	5	51	0	0	38	48	15	0	3	2	44	10	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	24	9	84	0	2	31	41	6	0	2	0	53	8	0	1
5:15 PM - 5:30 PM	0	0	1	0	0	13	4	38	0	0	28	47	7	0	2	5	61	11	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	27	49	9	0	1	7	14	50	0	1	3	38	6	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	12	3	41	0	0	16	45	5	0	4	3	40	10	0	0
TOTAL	**0**	**0**	**1**	**0**	**0**	**132**	**84**	**375**	**0**	**4**	**225**	**302**	**104**	**0**	**22**	**22**	**398**	**75**	**0**	**4**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	0	0	0	0	0	54	6	67	0	2	111	296	10	0	11	2	150	40	0	16
4:15 PM - 5:15 PM	0	0	0	0	0	60	24	239	0	3	144	162	37	0	11	4	199	40	0	2

	PHF	Trucks
AM	0.840	3.9%
PM	0.888	1.8%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

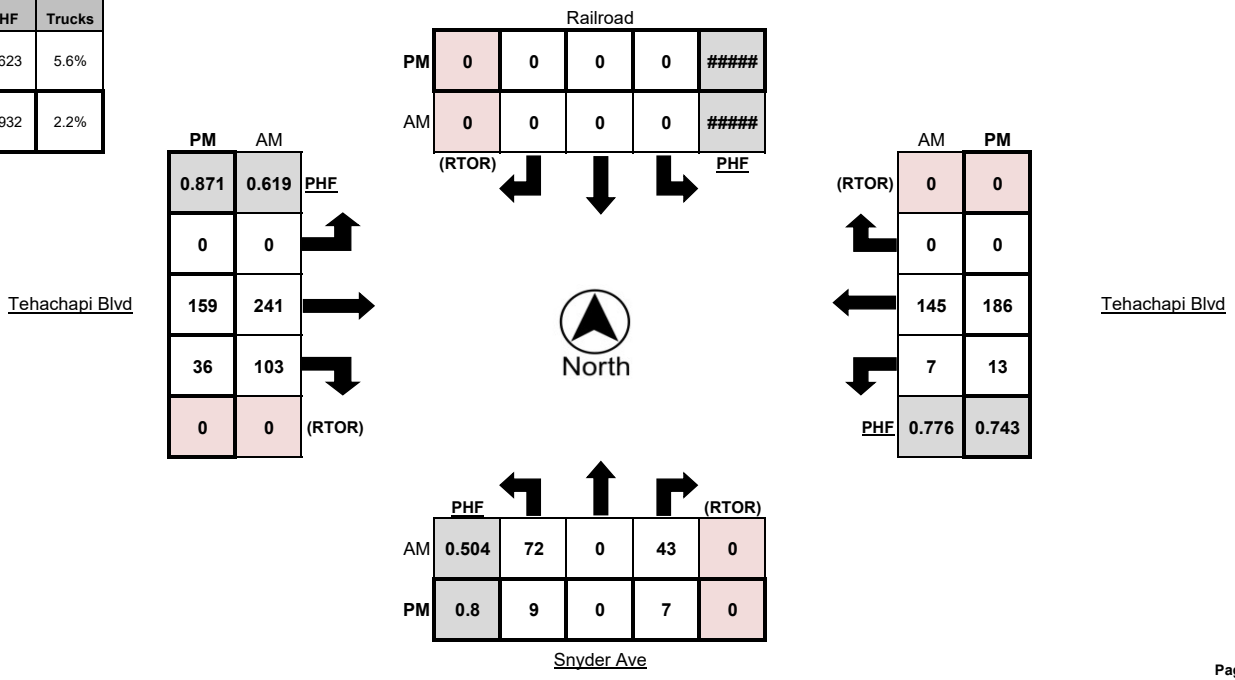
LOCATION Tehachapi Blvd @ Snyder Ave
LATITUDE 35.1311
COUNTY Kern
LONGITUDE -118.4386
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	7	0	9	0	1	0	0	0	0	0	0	90	44	0	3	3	36	0	0	9
7:15 AM - 7:30 AM	30	0	27	0	4	0	0	0	0	0	0	87	52	0	1	2	47	0	0	5
7:30 AM - 7:45 AM	29	0	6	0	1	0	0	0	0	0	0	42	5	0	3	2	40	0	0	4
7:45 AM - 8:00 AM	6	0	1	0	1	0	0	0	0	0	0	22	2	0	1	0	22	0	0	1
8:00 AM - 8:15 AM	6	0	2	0	0	0	0	0	0	0	0	28	4	0	5	0	23	0	0	2
8:15 AM - 8:30 AM	3	0	1	0	2	0	0	0	0	0	0	24	5	0	1	2	26	0	0	2
8:30 AM - 8:45 AM	3	0	1	0	0	0	0	0	0	0	0	21	4	0	1	0	29	0	0	1
8:45 AM - 9:00 AM	4	0	6	0	0	0	0	0	0	0	0	28	3	0	1	1	37	0	0	2
TOTAL	**88**	**0**	**53**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**342**	**119**	**0**	**16**	**10**	**260**	**0**	**0**	**26**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	3	0	0	0	0	0	0	0	0	0	0	41	10	0	4	1	46	0	0	2
4:15 PM - 4:30 PM	6	0	4	0	0	0	0	0	0	0	0	32	4	0	0	1	58	0	0	2
4:30 PM - 4:45 PM	6	0	0	0	1	0	0	0	0	0	0	29	8	0	2	4	44	0	0	3
4:45 PM - 5:00 PM	2	0	2	0	0	0	0	0	0	0	0	45	11	0	3	4	35	0	0	0
5:00 PM - 5:15 PM	3	0	2	0	0	0	0	0	0	0	0	44	9	0	1	2	49	0	0	0
5:15 PM - 5:30 PM	2	0	2	0	0	0	0	0	0	0	0	32	7	0	2	4	63	0	0	1
5:30 PM - 5:45 PM	2	0	1	0	0	0	0	0	0	0	0	38	9	0	2	3	39	0	0	0
5:45 PM - 6:00 PM	7	0	1	0	0	0	0	0	0	0	0	32	15	0	6	1	30	0	0	0
TOTAL	**31**	**0**	**12**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**293**	**73**	**0**	**20**	**20**	**364**	**0**	**0**	**8**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	72	0	43	0	7	0	0	0	0	0	0	241	103	0	8	7	145	0	0	19
4:45 PM - 5:45 PM	9	0	7	0	0	0	0	0	0	0	0	159	36	0	8	13	186	0	0	1

	PHF	Trucks
AM	0.623	5.6%
PM	0.932	2.2%



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Hanford, CA 93230

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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

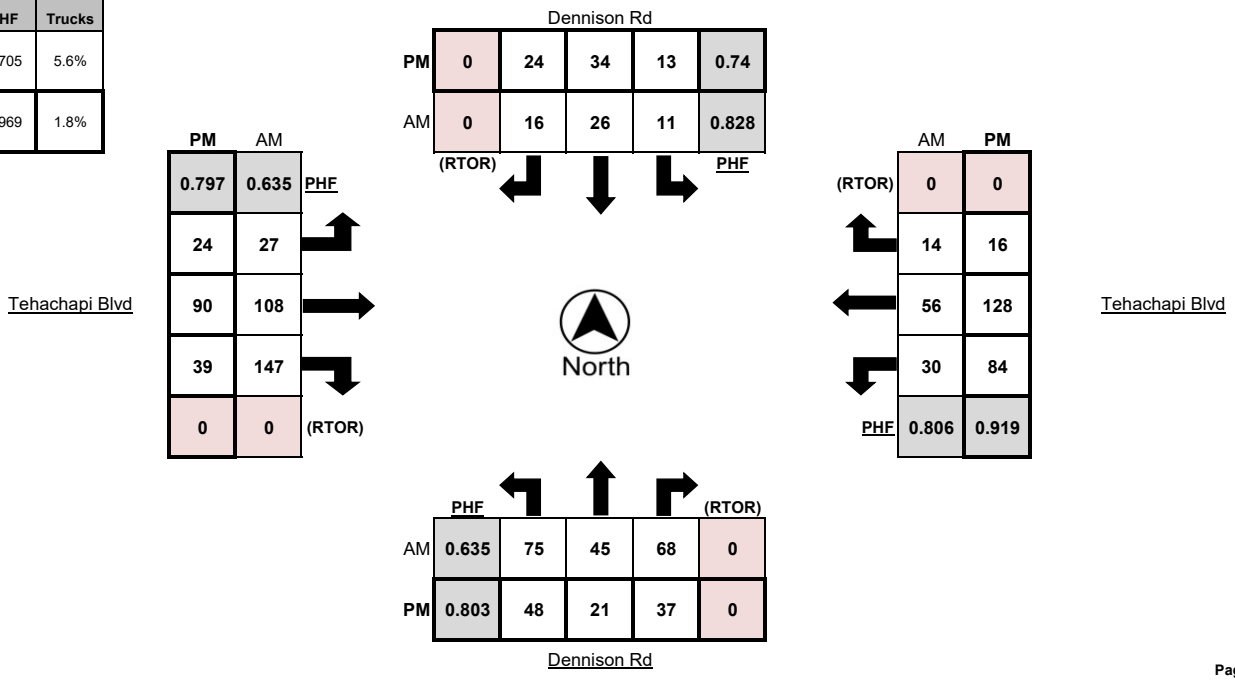
LOCATION Tehachapi Blvd @ Dennison Rd
LATITUDE 35.1302
COUNTY Kern
LONGITUDE -118.4320
COLLECTION DATE Tuesday, May 21, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	14	18	23	0	5	1	2	4	0	1	8	31	61	0	2	9	20	2	0	3
7:15 AM - 7:30 AM	43	14	17	0	4	2	11	2	0	1	4	37	70	0	1	9	5	7	0	2
7:30 AM - 7:45 AM	12	7	18	0	1	4	7	5	0	2	12	28	10	0	2	4	22	2	0	5
7:45 AM - 8:00 AM	6	6	10	0	0	4	6	5	0	4	3	12	6	0	2	8	9	3	0	0
8:00 AM - 8:15 AM	4	6	11	0	0	0	4	8	0	1	8	19	2	0	3	7	14	5	0	2
8:15 AM - 8:30 AM	3	8	16	0	2	1	6	5	0	3	1	19	6	0	1	5	18	1	0	0
8:30 AM - 8:45 AM	7	7	17	0	0	1	6	3	0	1	4	14	4	0	1	6	26	0	0	2
8:45 AM - 9:00 AM	9	3	9	0	0	1	4	4	0	0	1	22	7	0	1	4	18	6	0	1
TOTAL	**98**	**69**	**121**	**0**	**12**	**14**	**46**	**36**	**0**	**13**	**41**	**182**	**166**	**0**	**13**	**52**	**132**	**26**	**0**	**15**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	10	8	12	0	5	4	11	8	0	0	1	28	13	0	3	17	28	0	0	2
4:15 PM - 4:30 PM	13	9	11	0	1	3	7	8	0	0	3	19	10	0	0	19	38	4	0	0
4:30 PM - 4:45 PM	12	2	10	0	1	3	13	8	0	1	5	15	9	0	2	15	31	5	0	3
4:45 PM - 5:00 PM	11	5	12	0	0	3	6	4	0	0	9	25	14	0	1	26	23	5	0	0
5:00 PM - 5:15 PM	12	5	4	0	0	4	8	4	0	0	7	31	6	0	1	24	36	2	0	0
5:15 PM - 5:30 PM	7	3	7	0	0	1	5	7	0	0	5	17	9	0	0	22	50	3	0	0
5:30 PM - 5:45 PM	4	3	2	0	2	9	6	5	0	1	8	19	10	0	1	26	26	1	0	0
5:45 PM - 6:00 PM	2	1	6	0	0	5	7	2	0	0	1	25	7	0	3	7	23	1	0	0
TOTAL	**71**	**36**	**64**	**0**	**9**	**32**	**63**	**46**	**0**	**2**	**39**	**179**	**78**	**0**	**11**	**156**	**255**	**21**	**0**	**5**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	75	45	68	0	10	11	26	16	0	8	27	108	147	0	7	30	56	14	0	10
4:15 PM - 5:15 PM	48	21	37	0	2	13	34	24	0	1	24	90	39	0	4	84	128	16	0	3

	PHF	Trucks
AM	0.705	5.6%
PM	0.969	1.8%



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www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

LOCATION Valley Blvd @ Tucker Rd
LATITUDE 35.1243
COUNTY Kern
LONGITUDE -118.4678
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	8	27	9	2	0	35	14	34	11	4	71	93	12	10	6	7	35	12	6	1
7:15 AM - 7:30 AM	22	29	8	3	1	24	19	40	17	2	63	52	17	11	1	14	71	13	5	2
7:30 AM - 7:45 AM	24	30	6	2	3	33	17	22	12	10	60	26	7	2	5	15	61	18	7	2
7:45 AM - 8:00 AM	15	21	12	4	1	29	23	25	14	5	49	30	7	4	2	4	44	10	4	2
8:00 AM - 8:15 AM	14	27	12	3	3	24	10	31	12	7	46	27	8	3	2	8	38	23	11	0
8:15 AM - 8:30 AM	15	31	8	3	1	26	21	23	11	4	53	35	7	3	4	12	41	8	3	0
8:30 AM - 8:45 AM	27	30	12	4	2	37	21	38	17	7	49	41	10	6	5	19	62	14	8	7
8:45 AM - 9:00 AM	37	36	17	4	1	24	31	29	13	4	62	69	12	7	4	19	82	29	14	2
TOTAL	**162**	**231**	**84**	**25**	**12**	**232**	**156**	**242**	**107**	**43**	**453**	**373**	**80**	**46**	**29**	**98**	**434**	**127**	**58**	**16**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	53	28	22	9	1	39	44	54	21	2	67	61	23	12	5	30	62	17	7	1
4:15 PM - 4:30 PM	62	37	20	11	0	55	61	40	23	1	46	51	17	9	4	29	67	19	11	0
4:30 PM - 4:45 PM	46	35	31	10	1	48	66	38	18	4	32	54	20	11	2	29	57	17	8	0
4:45 PM - 5:00 PM	66	37	20	9	0	42	64	54	27	1	58	67	24	12	2	26	70	13	4	0
5:00 PM - 5:15 PM	53	23	20	10	1	54	52	54	24	3	50	50	25	13	1	33	71	25	11	0
5:15 PM - 5:30 PM	65	36	19	12	0	37	53	39	21	3	45	50	23	9	2	32	56	15	7	1
5:30 PM - 5:45 PM	55	33	24	13	0	50	52	56	24	4	77	90	38	7	3	28	71	11	4	0
5:45 PM - 6:00 PM	59	41	17	11	3	44	38	53	22	0	38	49	20	11	1	32	60	21	10	0
TOTAL	**459**	**270**	**173**	**85**	**6**	**369**	**430**	**388**	**180**	**18**	**413**	**472**	**190**	**84**	**20**	**239**	**514**	**138**	**62**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
8:00 AM - 9:00 AM	93	124	49	14	7	111	83	121	53	22	210	172	37	19	15	58	223	74	36	9
4:45 PM - 5:45 PM	239	129	83	44	1	183	221	203	96	11	230	257	110	41	8	119	268	64	26	1

	PHF	Trucks
AM	0.758	3.9%
PM	0.900	1.0%

Tucker Rd

PM	**96**	**203**	**221**	**183**	**0.948**
AM	**53**	**121**	**83**	**111**	**0.82**
	(RTOR)				PHF

Valley Blvd

PM	AM	
0.728	**0.733**	PHF
230	**210**	
257	**172**	
110	**37**	
41	**19**	(RTOR)

Valley Blvd

	AM	PM
(RTOR)	**36**	**26**
	74	**64**
	223	**268**
	58	**119**
PHF	**0.683**	**0.874**

	PHF				(RTOR)
AM	**0.739**	**93**	**124**	**49**	**14**
PM	**0.917**	**239**	**129**	**83**	**44**

Tucker Rd

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

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

Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

LOCATION Valley Blvd @ Mt View Ave
LATITUDE 35.1244
COUNTY Kern
LONGITUDE -118.4585
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	0	4	0	0	6	0	5	0	0	10	130	0	0	6	1	56	2	0	2
7:15 AM - 7:30 AM	1	0	2	0	0	2	0	5	0	1	7	71	0	0	2	3	101	3	0	1
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	6	0	0	3	39	2	0	0	1	78	4	0	1
7:45 AM - 8:00 AM	2	0	2	0	0	4	0	8	0	1	9	47	0	0	1	0	55	8	0	2
8:00 AM - 8:15 AM	0	0	2	0	0	2	1	8	0	0	8	34	0	0	2	1	59	2	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	1	0	7	0	0	3	51	0	0	3	4	57	2	0	2
8:30 AM - 8:45 AM	1	0	2	0	1	5	1	12	0	1	4	78	1	0	1	1	80	6	0	6
8:45 AM - 9:00 AM	2	1	3	0	0	6	0	8	0	1	18	75	1	0	1	2	110	1	0	1
TOTAL	**6**	**1**	**15**	**0**	**1**	**26**	**2**	**59**	**0**	**4**	**62**	**525**	**4**	**0**	**16**	**13**	**596**	**28**	**0**	**16**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	1	0	3	0	0	6	2	25	0	3	18	97	1	0	3	0	82	2	0	0
4:15 PM - 4:30 PM	2	0	2	0	0	7	0	30	0	0	19	94	0	0	3	0	81	2	0	0
4:30 PM - 4:45 PM	0	1	0	0	0	4	0	31	0	0	22	65	0	0	1	5	76	3	0	2
4:45 PM - 5:00 PM	0	1	2	0	0	6	0	19	0	1	15	108	1	0	2	1	83	11	0	1
5:00 PM - 5:15 PM	0	0	2	0	0	7	1	35	0	1	13	103	4	1	1	2	92	7	0	1
5:15 PM - 5:30 PM	0	2	2	0	1	10	2	37	0	2	18	88	1	0	4	1	69	6	0	0
5:30 PM - 5:45 PM	1	1	1	0	0	7	1	27	0	0	10	79	2	0	0	1	74	6	0	0
5:45 PM - 6:00 PM	2	0	0	0	0	5	0	19	0	1	12	90	4	0	2	5	80	8	0	1
TOTAL	**6**	**5**	**12**	**0**	**1**	**52**	**6**	**223**	**0**	**8**	**127**	**724**	**13**	**1**	**16**	**15**	**637**	**45**	**0**	**5**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	3	0	8	0	0	12	0	24	0	2	29	287	2	0	9	5	290	17	0	6
4:45 PM - 5:45 PM	1	4	7	0	1	30	4	118	0	4	56	378	8	1	7	5	318	30	0	2

	PHF	Trucks
AM	0.791	2.5%
PM	0.901	1.5%

Mt View Ave

PM	0	118	4	30	0.776
AM	0	24	0	12	0.75
	(RTOR)				PHF

Valley Blvd

PM	AM	
0.891	0.568	PHF
56	29	
378	287	
8	2	
1	0	(RTOR)

Valley Blvd

AM	PM	
0	0	(RTOR)
17	30	
290	318	
5	5	
0.729	0.874	PHF

	PHF				(RTOR)
AM	0.688	3	0	8	0
PM	0.75	1	4	7	0

Aspen Dr

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

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

Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

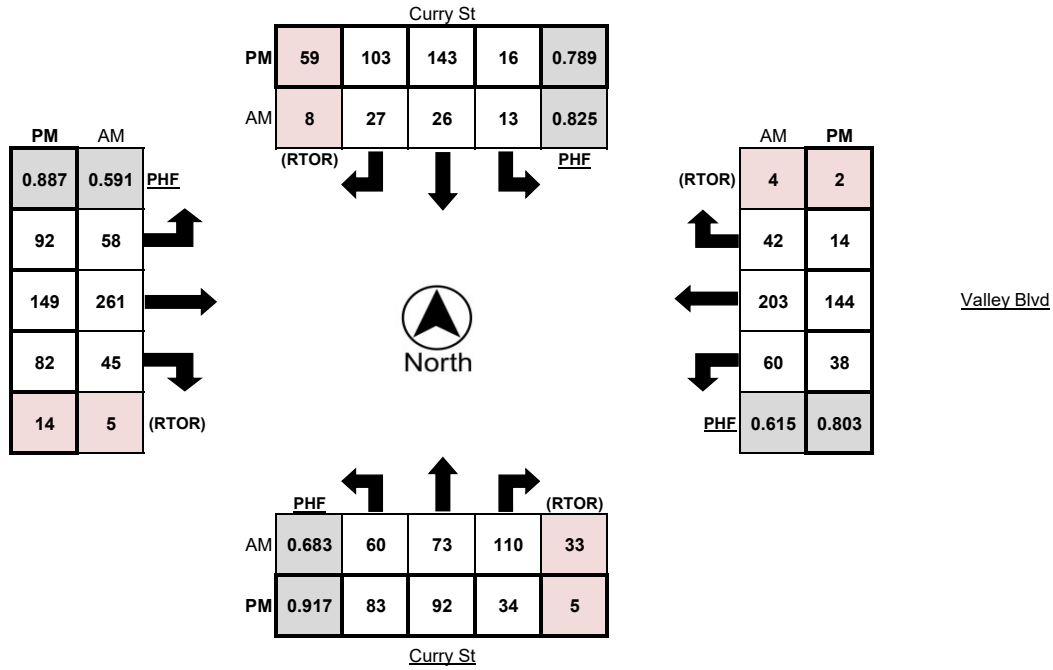
LOCATION Valley Blvd @ Curry St
LATITUDE 35.1243
COUNTY Kern
LONGITUDE -118.4500
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	13	20	56	17	3	4	9	7	2	4	11	134	9	1	7	9	38	4	1	0
7:15 AM - 7:30 AM	9	15	42	13	0	5	7	8	3	0	10	86	10	1	1	9	84	31	2	0
7:30 AM - 7:45 AM	16	9	9	2	1	2	6	9	2	0	10	22	17	2	1	30	62	3	0	0
7:45 AM - 8:00 AM	22	29	3	1	0	2	4	3	1	1	27	19	9	1	0	12	19	4	1	0
8:00 AM - 8:15 AM	22	12	4	1	0	0	13	6	2	0	12	20	7	1	1	5	19	3	1	0
8:15 AM - 8:30 AM	13	13	7	1	2	3	13	12	1	1	9	27	12	2	1	3	27	3	0	0
8:30 AM - 8:45 AM	29	17	6	2	1	6	36	15	3	0	18	19	33	4	0	11	21	1	0	0
8:45 AM - 9:00 AM	50	47	30	9	2	1	37	12	2	1	21	16	37	6	1	18	28	3	1	0
TOTAL	**174**	**162**	**157**	**46**	**9**	**23**	**125**	**72**	**16**	**7**	**118**	**343**	**134**	**18**	**12**	**97**	**298**	**52**	**6**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	23	31	6	1	0	5	28	19	13	0	30	34	22	4	4	8	30	4	1	0
4:15 PM - 4:30 PM	21	25	10	1	3	5	34	23	14	1	13	40	22	5	3	7	24	3	1	0
4:30 PM - 4:45 PM	19	20	8	1	2	4	29	20	15	2	20	28	19	3	1	8	34	4	0	0
4:45 PM - 5:00 PM	25	20	12	2	0	3	40	21	14	0	31	40	19	2	1	12	42	1	0	1
5:00 PM - 5:15 PM	18	27	4	1	1	4	40	39	16	0	28	41	22	4	1	11	44	6	1	0
5:15 PM - 5:30 PM	27	22	5	2	0	1	28	21	7	0	23	31	24	4	0	9	21	2	0	0
5:30 PM - 5:45 PM	15	26	4	1	1	3	44	39	14	1	17	22	23	3	0	9	21	3	1	0
5:45 PM - 6:00 PM	29	37	7	2	0	3	39	25	15	1	18	30	29	5	0	8	31	1	0	0
TOTAL	**177**	**208**	**56**	**11**	**7**	**28**	**282**	**207**	**108**	**5**	**180**	**266**	**180**	**30**	**10**	**72**	**247**	**24**	**4**	**1**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	60	73	110	33	4	13	26	27	8	5	58	261	45	5	9	60	203	42	4	0
4:15 PM - 5:15 PM	83	92	34	5	6	16	143	103	59	3	92	149	82	14	6	38	144	14	2	1

	PHF	Trucks
AM	0.774	1.8%
PM	0.871	1.6%



Metro Traffic Data Inc.
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Hanford, CA 93230

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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

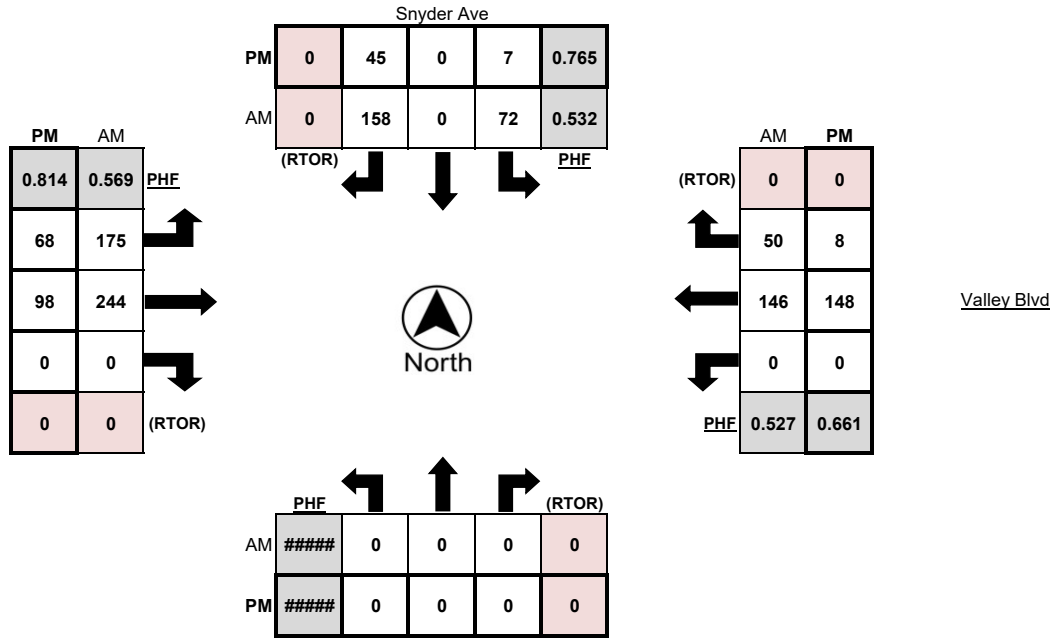
LOCATION Valley Blvd @ Snyder Ave
LATITUDE 35.1242
COUNTY Kern
LONGITUDE -118.4387
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	36	0	37	0	0	71	113	0	0	9	0	32	21	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	34	0	74	0	0	82	97	0	0	1	0	69	24	0	1
7:30 AM - 7:45 AM	0	0	0	0	0	2	0	44	0	0	15	16	0	0	0	0	25	3	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	3	0	0	7	18	0	0	0	0	20	2	0	2
8:00 AM - 8:15 AM	0	0	0	0	0	2	0	9	0	0	3	20	0	0	0	0	17	2	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	2	0	9	0	1	13	19	0	0	1	0	21	1	0	1
8:30 AM - 8:45 AM	0	0	0	0	0	4	0	15	0	1	5	22	0	0	0	0	27	0	0	1
8:45 AM - 9:00 AM	0	0	0	0	0	2	0	16	0	1	19	29	0	0	1	0	27	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**82**	**0**	**207**	**0**	**3**	**215**	**334**	**0**	**0**	**12**	**0**	**238**	**53**	**0**	**6**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	6	0	0	14	24	0	0	1	0	29	1	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	1	0	12	0	0	16	25	0	0	3	0	22	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	2	0	15	0	0	10	18	0	0	1	0	26	1	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	1	0	9	0	0	26	25	0	0	0	0	54	5	0	1
5:00 PM - 5:15 PM	0	0	0	0	0	3	0	9	0	0	16	30	0	0	0	0	46	2	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	1	0	9	0	0	9	20	0	0	0	0	31	4	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	2	0	5	0	0	11	17	0	0	0	0	25	2	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	1	0	13	0	0	21	15	0	0	0	0	25	1	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**78**	**0**	**0**	**123**	**174**	**0**	**0**	**5**	**0**	**258**	**16**	**0**	**1**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	0	0	0	0	0	72	0	158	0	0	175	244	0	0	10	0	146	50	0	3
4:15 PM - 5:15 PM	0	0	0	0	0	7	0	45	0	0	68	98	0	0	4	0	148	8	0	1

	PHF	Trucks
AM	0.556	1.5%
PM	0.779	1.3%



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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

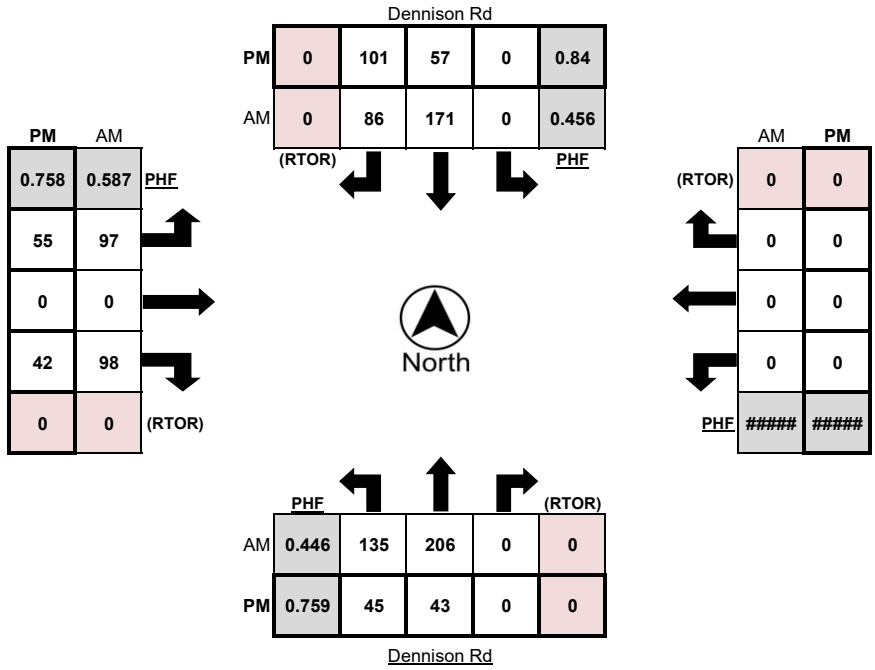
LOCATION Valley Blvd @ Dennison Rd
LATITUDE 35.1242
COUNTY Kern
LONGITUDE -118.4322
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	37	54	0	0	6	0	58	21	0	1	27	0	46	0	5	0	0	0	0	0
7:15 AM - 7:30 AM	75	116	0	0	3	0	94	47	0	1	47	0	36	0	4	0	0	0	0	0
7:30 AM - 7:45 AM	10	22	0	0	0	0	12	10	0	0	12	0	8	0	1	0	0	0	0	0
7:45 AM - 8:00 AM	13	14	0	0	1	0	7	8	0	3	11	0	8	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	8	14	0	0	3	0	11	11	0	2	9	0	6	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	10	10	0	0	0	0	9	11	0	2	15	0	4	0	1	0	0	0	0	0
8:30 AM - 8:45 AM	15	9	0	0	1	1	5	10	0	0	13	0	12	0	1	0	0	0	0	0
8:45 AM - 9:00 AM	15	17	0	0	1	0	6	14	0	1	12	0	17	0	0	1	0	0	0	0
TOTAL	**183**	**256**	**0**	**0**	**15**	**1**	**202**	**132**	**0**	**10**	**146**	**0**	**137**	**0**	**12**	**1**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	7	10	0	0	2	0	14	21	0	0	8	0	8	0	1	0	0	0	0	0
4:15 PM - 4:30 PM	5	13	0	0	1	0	10	15	0	0	15	0	10	0	4	0	0	0	0	0
4:30 PM - 4:45 PM	6	13	0	0	0	0	11	19	0	1	2	0	12	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	17	12	0	0	0	0	13	28	0	1	14	0	10	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	10	15	0	0	2	0	19	28	0	0	20	0	12	0	2	0	0	0	0	0
5:15 PM - 5:30 PM	10	8	0	0	0	0	14	25	0	0	10	0	11	0	1	0	0	0	0	0
5:30 PM - 5:45 PM	8	8	0	0	0	0	11	20	0	0	11	0	9	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	7	7	0	0	2	1	8	18	0	0	8	0	12	0	1	0	0	0	0	0
TOTAL	**70**	**86**	**0**	**0**	**7**	**1**	**100**	**174**	**0**	**2**	**88**	**0**	**84**	**0**	**9**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	135	206	0	0	10	0	171	86	0	5	97	0	98	0	10	0	0	0	0	0
4:45 PM - 5:45 PM	45	43	0	0	2	0	57	101	0	1	55	0	42	0	3	0	0	0	0	0

	PHF	Trucks
AM	0.478	3.2%
PM	0.825	1.7%



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

800-975-6938 Phone/Fax
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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

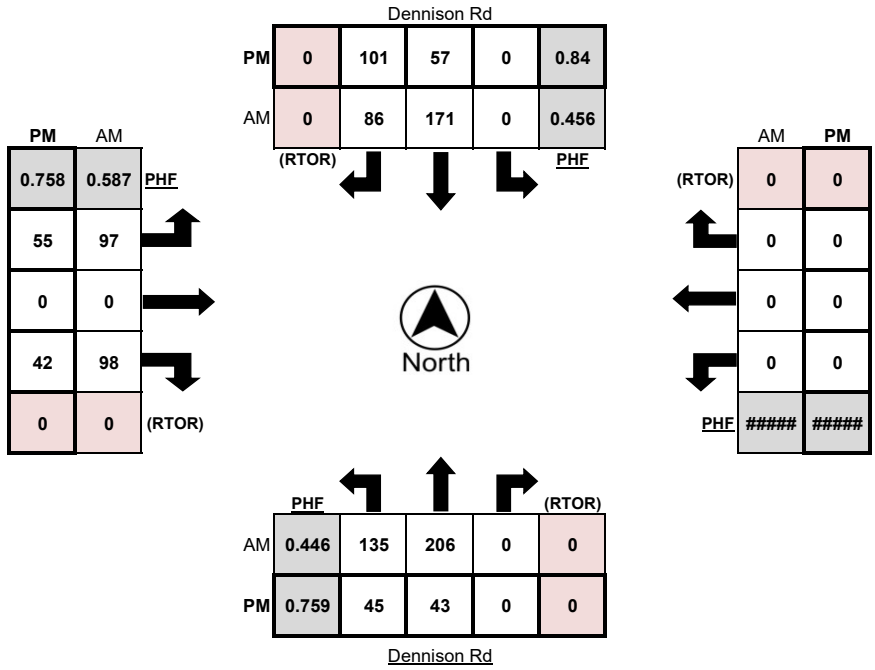
LOCATION Valley Blvd @ Dennison Rd
LATITUDE 35.1242
COUNTY Kern
LONGITUDE -118.4322
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	37	54	0	0	6	0	58	21	0	1	27	0	46	0	5	0	0	0	0	0
7:15 AM - 7:30 AM	75	116	0	0	3	0	94	47	0	1	47	0	36	0	4	0	0	0	0	0
7:30 AM - 7:45 AM	10	22	0	0	0	0	12	10	0	0	12	0	8	0	1	0	0	0	0	0
7:45 AM - 8:00 AM	13	14	0	0	1	0	7	8	0	3	11	0	8	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	8	14	0	0	3	0	11	11	0	2	9	0	6	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	10	10	0	0	0	0	9	11	0	2	15	0	4	0	1	0	0	0	0	0
8:30 AM - 8:45 AM	15	9	0	0	1	1	5	10	0	0	13	0	12	0	1	0	0	0	0	0
8:45 AM - 9:00 AM	15	17	0	0	1	0	6	14	0	1	12	0	17	0	0	1	0	0	0	0
TOTAL	**183**	**256**	**0**	**0**	**15**	**1**	**202**	**132**	**0**	**10**	**146**	**0**	**137**	**0**	**12**	**1**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	7	10	0	0	2	0	14	21	0	0	8	0	8	0	1	0	0	0	0	0
4:15 PM - 4:30 PM	5	13	0	0	1	0	10	15	0	0	15	0	10	0	4	0	0	0	0	0
4:30 PM - 4:45 PM	6	13	0	0	0	0	11	19	0	1	2	0	12	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	17	12	0	0	0	0	13	28	0	1	14	0	10	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	10	15	0	0	2	0	19	28	0	0	20	0	12	0	2	0	0	0	0	0
5:15 PM - 5:30 PM	10	8	0	0	0	0	14	25	0	0	10	0	11	0	1	0	0	0	0	0
5:30 PM - 5:45 PM	8	8	0	0	0	0	11	20	0	0	11	0	9	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	7	7	0	0	2	1	8	18	0	0	8	0	12	0	1	0	0	0	0	0
TOTAL	**70**	**86**	**0**	**0**	**7**	**1**	**100**	**174**	**0**	**2**	**88**	**0**	**84**	**0**	**9**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	135	206	0	0	10	0	171	86	0	5	97	0	98	0	10	0	0	0	0	0
4:45 PM - 5:45 PM	45	43	0	0	2	0	57	101	0	1	55	0	42	0	3	0	0	0	0	0

	PHF	Trucks
AM	0.478	3.2%
PM	0.825	1.7%



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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

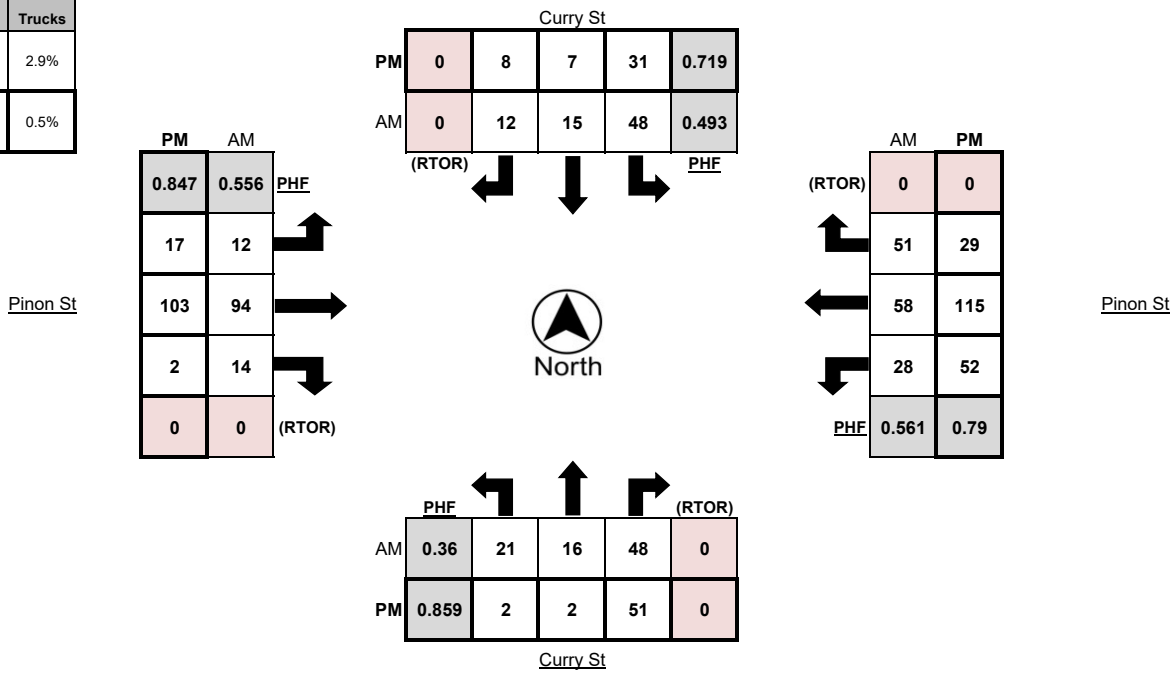
LOCATION Curry St @ Pinon St
LATITUDE 35.1169
COUNTY Kern
LONGITUDE -118.4500
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	2	0	18	0	0	10	3	4	0	1	2	35	1	0	1	6	11	2	0	2
7:15 AM - 7:30 AM	3	0	12	0	1	11	0	2	0	0	4	25	0	0	0	10	17	5	0	0
7:30 AM - 7:45 AM	2	1	7	0	0	3	1	2	0	0	3	10	1	0	0	9	22	4	0	0
7:45 AM - 8:00 AM	0	1	6	0	1	9	0	2	0	0	1	27	0	0	0	2	4	0	0	1
8:00 AM - 8:15 AM	1	0	7	0	0	3	0	0	0	0	1	14	1	0	1	2	13	3	0	0
8:15 AM - 8:30 AM	0	1	4	0	0	7	1	3	0	2	0	16	0	0	0	7	8	2	0	2
8:30 AM - 8:45 AM	0	2	11	0	0	15	4	4	0	1	4	25	5	0	2	10	18	13	0	1
8:45 AM - 9:00 AM	20	13	26	0	0	23	10	5	0	1	7	39	8	0	1	9	19	33	0	1
TOTAL	**28**	**18**	**91**	**0**	**2**	**81**	**19**	**22**	**0**	**5**	**22**	**191**	**16**	**0**	**5**	**55**	**112**	**62**	**0**	**7**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	2	2	11	0	0	5	6	4	0	1	3	30	1	0	0	10	31	6	0	0
4:15 PM - 4:30 PM	1	1	7	0	0	3	1	2	0	0	6	19	0	0	2	6	23	8	0	0
4:30 PM - 4:45 PM	0	1	7	0	0	4	2	7	0	1	6	28	1	0	2	8	29	9	0	0
4:45 PM - 5:00 PM	0	1	7	0	0	7	4	5	0	0	0	33	1	0	0	14	31	2	0	0
5:00 PM - 5:15 PM	0	2	12	0	0	5	3	5	0	0	4	24	1	0	1	12	29	8	0	0
5:15 PM - 5:30 PM	0	0	14	0	0	4	1	3	0	0	6	25	1	0	0	14	21	6	0	0
5:30 PM - 5:45 PM	1	0	10	0	0	7	2	0	0	0	4	21	0	0	0	17	34	11	0	0
5:45 PM - 6:00 PM	1	0	15	0	1	15	1	0	0	0	3	33	0	0	0	9	31	4	0	0
TOTAL	**5**	**7**	**83**	**0**	**1**	**50**	**20**	**26**	**0**	**2**	**32**	**213**	**5**	**0**	**5**	**90**	**229**	**54**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
8:00 AM - 9:00 AM	21	16	48	0	0	48	15	12	0	4	12	94	14	0	4	28	58	51	0	4
5:00 PM - 6:00 PM	2	2	51	0	1	31	7	8	0	0	17	103	2	0	1	52	115	29	0	0

	PHF	Trucks
AM	0.492	2.9%
PM	0.935	0.5%



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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

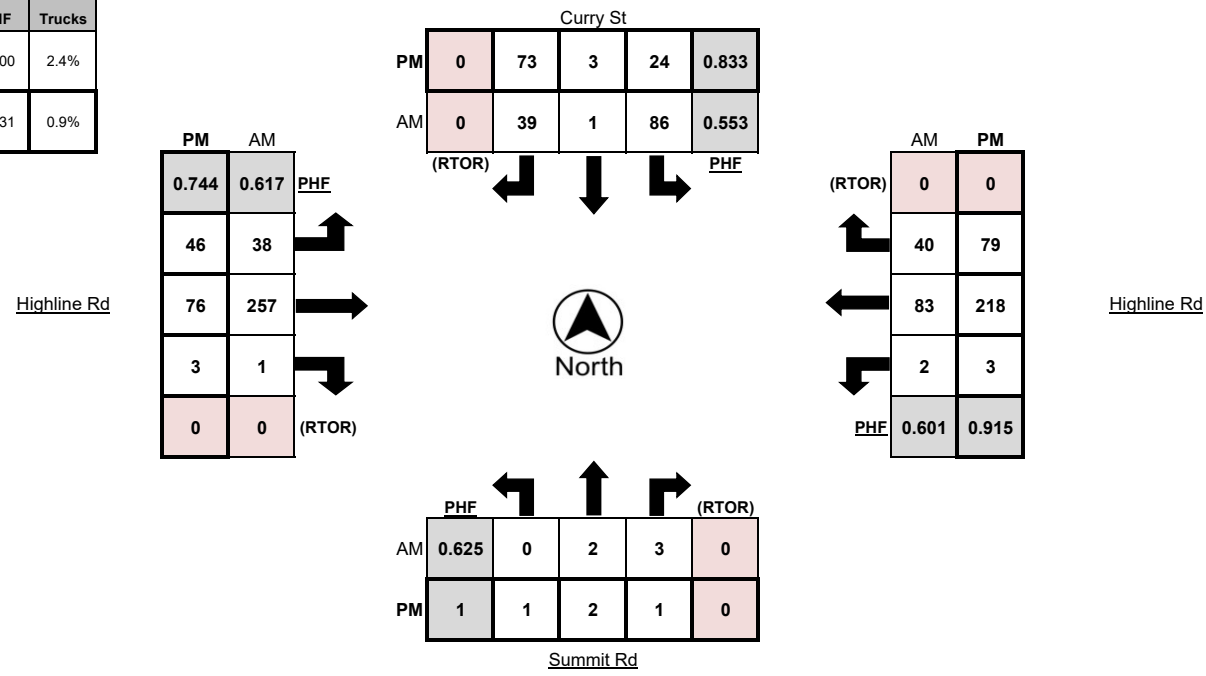
LOCATION Highline Rd @ Curry St
LATITUDE 35.1095
COUNTY Kern
LONGITUDE -118.4502
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	2	0	0	0	20	0	7	0	0	18	88	1	0	4	0	12	4	0	0
7:15 AM - 7:30 AM	0	0	1	0	0	47	0	10	0	0	8	112	0	0	0	0	34	18	0	3
7:30 AM - 7:45 AM	0	0	2	0	1	10	1	13	0	1	4	29	0	0	0	2	22	11	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	9	0	9	0	1	8	28	0	0	1	0	15	7	0	2
8:00 AM - 8:15 AM	2	0	2	0	0	10	0	12	0	1	8	22	0	0	2	0	12	2	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	1	1	6	0	2	9	17	1	0	1	0	9	4	0	3
8:30 AM - 8:45 AM	1	0	0	2	0	5	1	8	0	0	11	23	0	0	2	1	14	12	0	0
8:45 AM - 9:00 AM	0	0	2	0	0	9	1	16	0	0	20	12	1	0	1	0	21	17	0	1
TOTAL	**3**	**2**	**7**	**2**	**1**	**111**	**4**	**81**	**0**	**5**	**86**	**331**	**3**	**0**	**11**	**3**	**139**	**75**	**0**	**9**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	0	1	0	0	0	8	4	14	0	0	15	34	0	0	2	0	51	13	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	4	0	12	0	0	9	23	1	0	0	0	57	20	0	1
4:30 PM - 4:45 PM	0	1	0	0	0	7	0	12	0	0	13	21	0	0	4	0	52	22	0	2
4:45 PM - 5:00 PM	0	1	1	0	0	4	0	20	0	0	12	19	1	0	0	1	49	22	0	1
5:00 PM - 5:15 PM	0	1	0	0	0	7	0	19	0	0	9	26	0	0	1	0	70	10	0	2
5:15 PM - 5:30 PM	1	0	0	0	0	4	1	11	0	1	11	13	3	0	0	0	50	27	0	0
5:30 PM - 5:45 PM	0	1	0	0	0	8	1	21	0	0	7	14	0	0	0	1	57	24	0	0
5:45 PM - 6:00 PM	0	0	1	0	0	5	1	22	0	0	19	23	0	0	1	2	41	18	0	0
TOTAL	**1**	**5**	**2**	**0**	**0**	**47**	**7**	**131**	**0**	**1**	**95**	**173**	**5**	**0**	**8**	**4**	**427**	**156**	**0**	**6**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	0	2	3	0	1	86	1	39	0	2	38	257	1	0	5	2	83	40	0	5
5:00 PM - 6:00 PM	1	2	1	0	0	24	3	73	0	1	46	76	3	0	2	3	218	79	0	2

	PHF	Trucks
AM	0.600	2.4%
PM	0.931	0.9%



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Turning Movement Report

Prepared For:
Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

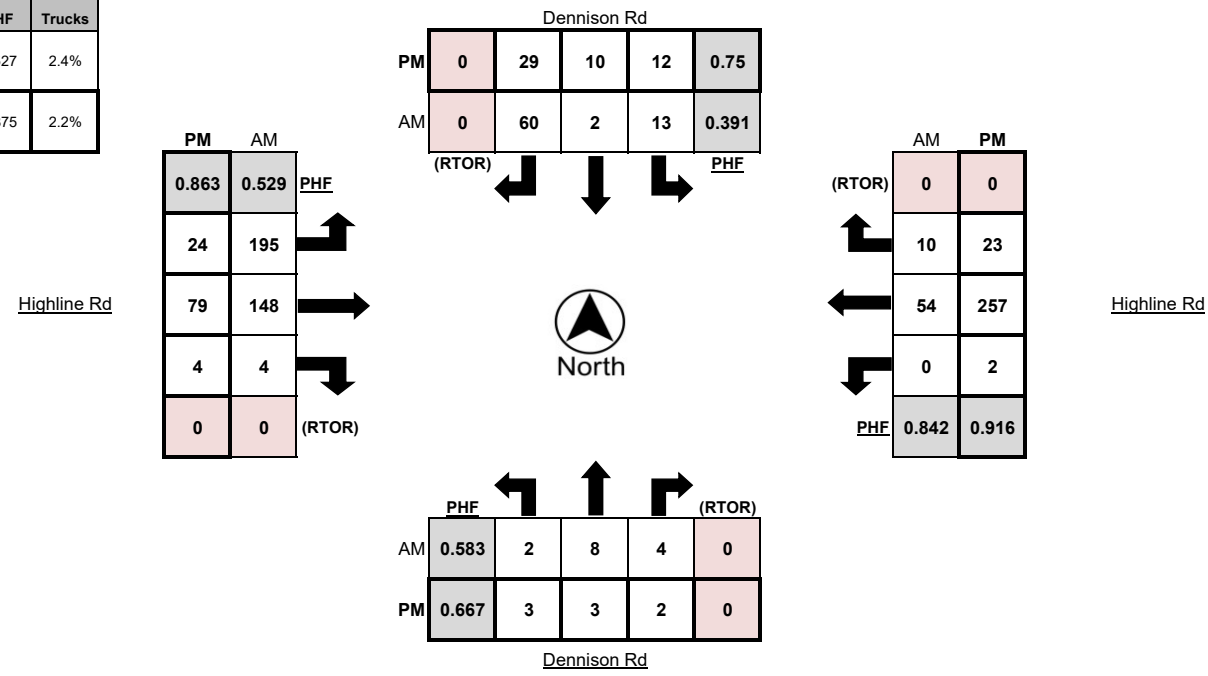
LOCATION Highline Rd @ Dennison Rd
LATITUDE 35.1097
COUNTY Kern
LONGITUDE -118.4324
COLLECTION DATE Wednesday, May 22, 2019
WEATHER Overcast

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	3	0	0	0	3	0	5	0	0	55	45	1	0	3	0	13	4	0	0
7:15 AM - 7:30 AM	0	3	3	0	0	5	1	42	0	2	131	31	2	0	1	0	15	4	0	2
7:30 AM - 7:45 AM	1	1	1	0	0	5	0	9	0	0	6	39	1	0	2	0	13	0	0	0
7:45 AM - 8:00 AM	1	1	0	0	0	0	1	4	0	1	3	33	0	0	1	0	13	2	0	0
8:00 AM - 8:15 AM	0	2	0	0	0	1	0	5	0	1	8	23	0	0	1	0	10	3	0	3
8:15 AM - 8:30 AM	0	2	1	0	0	1	0	1	0	0	5	12	0	0	1	0	9	1	0	2
8:30 AM - 8:45 AM	1	0	0	0	0	3	1	9	0	1	4	23	0	0	1	0	13	1	0	0
8:45 AM - 9:00 AM	2	0	0	0	0	1	1	9	0	0	5	18	0	0	2	0	18	3	0	2
TOTAL	**5**	**12**	**5**	**0**	**0**	**19**	**4**	**84**	**0**	**5**	**217**	**224**	**4**	**0**	**12**	**0**	**104**	**18**	**0**	**9**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	2	0	0	0	0	1	2	7	0	0	7	33	0	0	2	1	50	3	0	1
4:15 PM - 4:30 PM	0	0	1	0	0	3	2	7	0	0	4	21	0	0	0	0	60	8	0	2
4:30 PM - 4:45 PM	2	0	0	0	0	2	2	4	0	1	4	22	2	0	2	0	66	4	0	1
4:45 PM - 5:00 PM	0	2	0	0	0	4	2	8	0	0	6	16	1	0	0	1	60	6	0	0
5:00 PM - 5:15 PM	1	1	1	0	0	3	4	10	0	0	10	20	1	0	2	1	71	5	0	2
5:15 PM - 5:30 PM	1	0	0	0	0	0	1	7	0	0	4	13	1	0	1	0	63	4	0	0
5:30 PM - 5:45 PM	1	0	0	0	0	2	0	8	0	0	4	17	0	0	0	0	66	9	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	1	0	5	0	0	5	22	3	0	1	0	16	2	0	1
TOTAL	**7**	**3**	**2**	**0**	**0**	**16**	**13**	**56**	**0**	**1**	**44**	**164**	**8**	**0**	**8**	**3**	**452**	**41**	**0**	**7**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 8:00 AM	2	8	4	0	0	13	2	60	0	3	195	148	4	0	7	0	54	10	0	2
4:15 PM - 5:15 PM	3	3	2	0	0	12	10	29	0	1	24	79	4	0	4	2	257	23	0	5

	PHF	Trucks
AM	0.527	2.4%
PM	0.875	2.2%



CUMULATIVE PROJECT DATA

TEHACHAPI CALIFORNIA Live Up.

No.	Project Name	APN	Project Location	Land Use	Lot Size	Dwelling Units	Notes
1	Tract Map No. 6062		South of Pinon St, west of Dennison Rd, east of Curry St, and north of Highland Rd	Single Family	46 acres	125	110 du occupied
2	Tract Map No. 6216		South of Pinon St, west of Curry St, and north of Highland Rd	Single Family	122.7 acres	384	150 du occupied
3	Tract Map No. 6554		North and adjacent to Valley Blvd, west and adjacent to Dennison Rd, and north of Tehachapi High School	Single Family	17.6 acres	95	Map extended
4	Mill Street Retail Center	415-170-23	Northeast corner of Mill St and Industrial Pkwy	Restaurant	3,000 SF	N/A	Fast Food, entitled
5	Red Apple Pavilion	223-140-37, 223-140-39	Located at the southwest corner of Tehachapi Blvd/Red Apple Ave and Tucker Rd	Convenience Store, Restaurant	120,456 SF	N/A	Conceptualized, not submitted
6	Oak Tree Village	223-040-12, 223-040-13, 223-040-14	North of Hwy 58 and east of Capital Hills area	Residential and Commercial	210 acres	996	Skilled nursing facility, active adult housing, small scale commercial/retail, Specific Plan with EIR underway
7	Industrial Parkway Development	415-170-15	Industrial Parkway, east of Mill St	Automotive Retail and Auto Mechanic Training	20,000 SF	N/A	Partially buit
8	WalMart OutParcels	415-130-76	400 Tucker Road	Commercial/Retail	3.46 acres	N/A	In permitting
9	Bailey Court Buildout	223-650-04, 223-650-15, 223-650-13, 223-650-11, 223-650-10	Bailey Court	Industrial	10.63 acres	N/A	In permitting
10	Marley's Mutts	223-160-17	Parcel 5 on east side of Bailey Avenue	Office	37,500 SF	N/A	In permitting
11	Bailey Court Lot 13	223-650-12	Parcel 13 on west side of Bailey Avenue	Industrial	0.9 acres	N/A	In entitlement
12	Goodrick Industrial	223-180-52	Parcel 8 of Parcel Map 8331. North side of Goodrick Drive	Industrial	32,234 SF	N/A	In permitting
13	Snow Orthodontics	416-010-08	East side of Tucker Road between the Remax building and King of Siam/M&M sports	Office	1.84 acres	N/A	In permitting
14	The Address at Tehachapi	417-011-15, 417-011-14	57 acres of vacant land bounded by the Antelope Run Bike Path to the north, Tucker Road to the west, Highline Road to the south, and Kern County land zoned Estate 2.5 to the east	Residential	57 acres	240	In entitlement

No.	Project Name	APN	Project Location	Land Use	Lot Size	Dwelling Units	Notes
15	Sage Ranch	417-012-01, 417-012-24, 417-012-25, 417-012-28	138 acres of vacant land bounded by Valley Boulevard to the north, Tract 6212 to the west, Pinon Street to the south, and Tehachapi High School to the east	Residential	138 acres	1,068	In entitlement