ATTACHMENTS

Initial Study and Mitigated Negative Declaration

MAVERIK FUELING CENTER PROJECT

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LIST OF ATTACHMENTS

Attachment 4.2

California Agricultural Land Evaluation and Site Assessment (LESA) Model Calculation Tables and Zone of Influence Map - City of Orland

California Agricultural Land Evaluation and Site Assessment (LESA) Model Calculation Tables and Zone of Influence Map

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Czk	2.8	51%	4s	40	20.4	39	19.89
Wg	0.6	10%	3s	60	6	77	7.7
Wh	2.2	39%	3s	60	23.4	61	23.79
Totals	5.6	100%		49.8	***Storie Index***	51.38	

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC-Class I-II	LCC Class III	LCC Class IV-VII
			2.8
		0.6	
		2.2	
Total Acres		2.8	2.8
Project Size Scores		0	0

Highest Project	0

Table 4. Site Assessment Worksheet 2. - Water Resource Availability

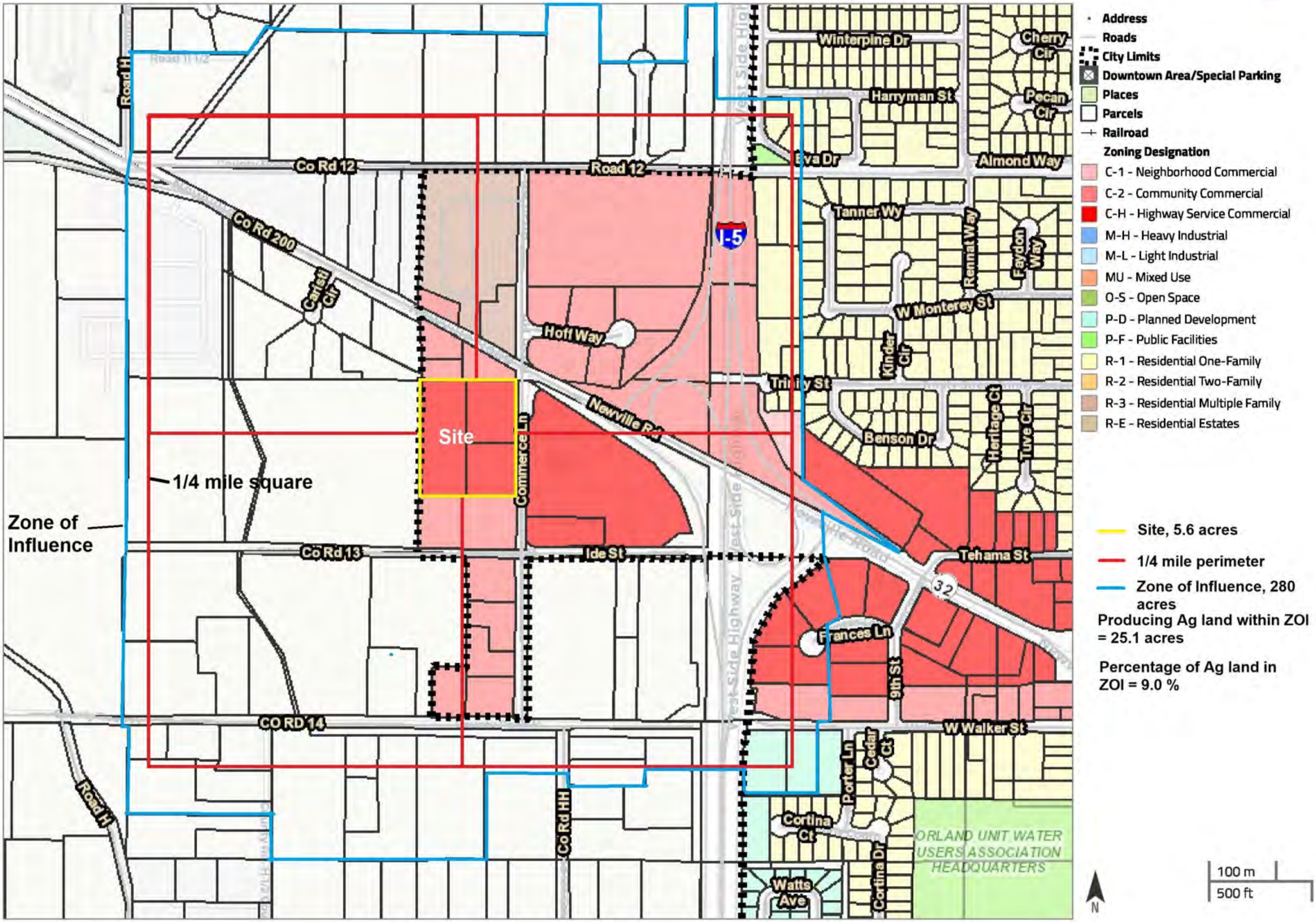
A Project Portion	B Water Resource	C Proportion of Project Area	D Water Availability Score	E Weighted Availability Score (C x D)
1	Irrigated Water District	51.0%	90	45.9
2		10.0%	90	9.0
3		39.0%	90	35.1
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	90

Table 8. Final LESA Scoresheet

A Factor Name		B Factor Rating (0-100 Points)	X	C Factor Weighting (Total = 1.00)	=	D Weighted Factor Rating
Land Evaluation						
1. Land Capability Classification	<Line 1>	49.8	X	0.25	=	12.4
2. Storie Index Rating	<Line 2>	51.8	X	0.25	=	12.8
Site Assessment						
1. Project Size	<Line 3>	0	X	0.15	=	0
2. Water Resource Availability	<Line 4>	90	X	0.15	=	13.5
3. Surrounding Agricultural Lands	<Line 5>	0	X	0.15	=	0
4. Protected Resource Lands	<Line 6>	0	X	0.05	=	0
				Total LESA Score (sum of weighted factor ratings)	<Line 7>	38.8

City of Orland
Interactive Viewer

Maverik Fueing Center Project
LESA Zone of Influence Map



Attachment 4.3

Air Quality & Greenhouse Gas Assessment Maverik Fueling Station Project, ECORP Consulting, Inc.

Air Quality & Greenhouse Gas Assessment
Maverik Fueling Station Project

Orland, California

Prepared For:

City of Orland
815 Fourth Street
Orland, CA 95926

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
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November 2021

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

1992 CO Plan	SCAQMD 1992 Federal Attainment Plan for Carbon Monoxide
AB	Assembly Bill
AQAP	Air Quality Attainment Plan
ASF	Age Sensitivity Factor
C-H	Highway Commercial
C-2	Community Commercial
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CIWMCB	California Integrated Waste Management Control Board
CPF	Cancer Potency Factor
CH_4	Methane
City	City of Orland
CO	Carbon monoxide
CO_2	Carbon dioxide
CO2e	Carbon dioxide equivalents
DPM	Diesel particulate matter
ED	Exposure Duration
EO	Executive Order
FAH	Fraction of Time at Home
GCAPCD	Glenn County Air Pollution Control District
GHG	Greenhouse gas emissions
GLC	Ground level concentrations
GCTC	Glenn County Transportation Commission
IPCC	Intergovernmental Panel on Climate Change
$\mu g/m^3$	Micrograms per cubic meter
MEIR	Maximum exposed Individual Resident
MEIW	Maximum exposed Individual Worker
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	Nitrogen dioxide
NO_x	Nitrous oxides
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	Northern Sacramento Valley Planning Area
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
parts per million	ppm
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
PMI	Point of Maximum Impact
ppb	Parts per billion

Project	Maverik Fueling Station Project
ROG	Reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SR	State Route
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
SVBAPCC	Sacramento Valley Basin-wide Air Pollution Control Council
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
T-BACT	Toxics best available control technology
USEPA	U.S. Environment Protection Agency
VMT	Vehicle Miles Traveled

1 INTRODUCTION

This report documents the results of an Air Quality and Greenhouse Gas (GHG) Emissions Assessments evaluation; and a Toxic Air Contaminant (TAC) Health Risk Assessment completed for the Orland Maverik Fueling Center (Project). This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Glenn County Air Pollutant Control District (GCAPCD), the California Air Control Officers Association (CAPCOA) and the California Air Resources Board (CARB). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment. Significance levels set forth by GCAPCD and CAPCOA are utilized to compare calculated Project emissions and determine significance.

1.1 Project Location and Description

The Proposed Project is located in the City of Orland on a 5.56-acre site at the southwest corner of Newville Road and Commerce Lane. Unincorporated areas of Glenn County (County) surround the Project Site to the west and northwest. The Project Site is currently vacant and bound by residences to the north with Newville Road beyond, Commerce Lane to the east with the Pilot Travel Center beyond, undeveloped land to the south, and agricultural land to the west.

The Project proposes the development of a 9,084 square foot building containing a convenience store and fast-food restaurant with drive thru, seven automobile gas fueling dispensers with two fueling stations each, a separate truck diesel fueling location with six dispensers, canopies covering both fueling locations, 62 parking stalls, 2 short-term (30 minutes maximum) semi-truck parking stalls, an RV wastewater dumping station, and both below- and above-ground fuel storage tanks. The Project Site would be accessible from two driveways on Commerce Lane.

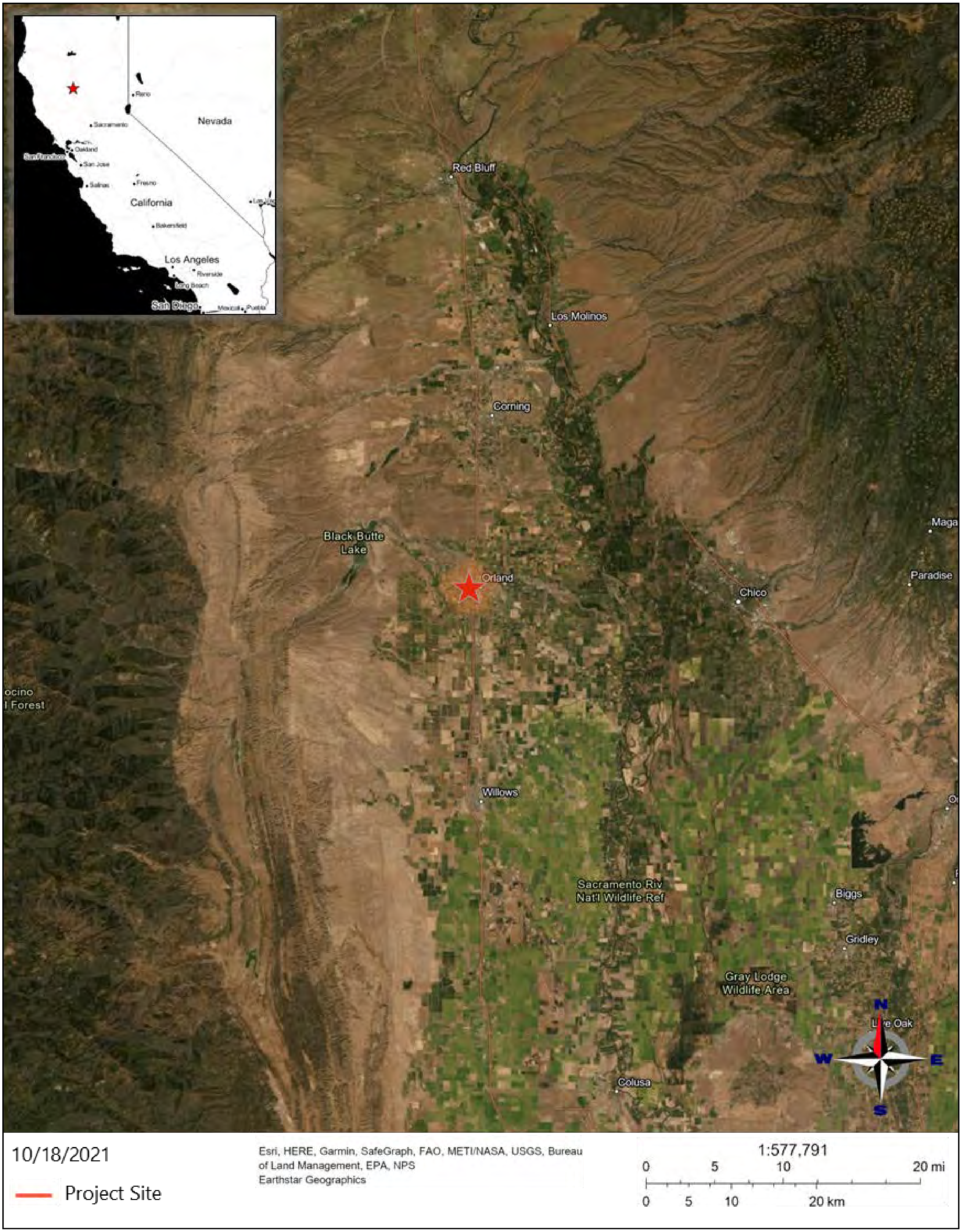

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Figure 1. Regional Location
Maverik Fueling Center Project

10/20/2021

Project Site

Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

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Figure 2. Project Location
Maverik Fueling Center Project

10/18/2021

Surrounding Land Use Areas

- Vacant Land
- Rural Residential
- Agriculture
- Surrounding Land Uses
- Commercial
- Mobile Home Park
- RV Park
- Single-Family Residential
- Project Boundary

1:4,514

0 0.04 0.07 0.15 mi

0 0.05 0.1 0.2 km

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Figure 3. Surrounding Land Uses

Maverik Fueling Center Project

2 AIR QUALITY

2.1 Environmental Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Northern Sacramento Valley Air Basin (NSVAB), which encompasses the Project Site, pursuant to the regulatory authority of the GCAPCD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

2.1.1 *Northern Sacramento Valley Air Basin*

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in Glenn County, which is in the Northern Sacramento Valley Air Basin (NSVAB). The NSVAB consists of a total of seven counties: Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada. These mountain ranges reach heights in excess of 6,000 feet AMSL, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as that transported northward on prevailing winds from the Sacramento metropolitan area (Sacramento Valley Basin-wide Air Pollution Control Council [SVBAPCC] 2018).

The environmental conditions of Glenn County are conducive to potentially adverse air quality conditions. The region is characterized by moderately wet winters followed by hot and dry summers. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Glenn County have also contributed to an increase in emissions.

2.1.2 *Criteria Air Pollutants*

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

Table 2-1. Summary of Criteria Air Pollutants Sources and Effects		
Pollutant	**Major Manmade Sources**	**Human Health and Welfare Effects**
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
$PM_{2.5}$ & PM_{10}	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

Source: California Air Pollution Control Offices Association (CAPCOA 2013)

Carbon Monoxide

CO, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most sever meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances (i.e., up to 600 feet or 185 meters) of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NOx). Motor vehicle emissions are the main source of NOx in urban areas. NOx is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NOx increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NOx, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

Ozone

Ozone (O_3) is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) also known as reactive organic gases (ROG) and NOx undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

Sulfur Dioxide

SO_2 is a colorless gas with a pungent odor, however sulfur dioxide can react with other particulates in the atmosphere to for particulates which contribute to the haze effect. SO_2 standards have been developed by the EPA to regulate all sulfur oxides, however SO_2 is by far the most abundant sulfur oxide in the atmosphere. Currently, SO_2 is primarily a result of the burning of fossil fuels for power generation and other industrial sources. Modern regulations on diesel fuel have greatly reduced the amount of SO_2 in the atmosphere and there are currently no areas in California that have levels of SO_2 that are not acceptable by state or federal standards.

Particulate Matter

Particulate matter includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NOx, sulfur oxides (SOx) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

2.1.3 *Toxic Air Contaminants*

TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds.

TACs do not have ambient air quality standards because safe levels of TACs cannot be determined. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588) apply to facilities that use, produce, or emit toxic chemicals. Facilities subject to the toxic emission inventory requirements of the act must prepare and submit toxic emission inventory plans and reports, and periodically update those reports.

Toxic contaminants often result from fuel storage and transfer activities and from leaking valves and pipes. For example, the electronics industry, including semiconductor manufacturing, uses highly toxic chlorinated solvents in semiconductor production processes. Sources of air toxics go beyond industry, however. Automobile exhaust also contains TACs.

Diesel Particulate Matter

Diesel particulate matter (DPM) is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute approximately 24 percent of the statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about five percent of total DPM. It should be noted that CARB has developed several plans and programs to reduce diesel emissions such as the Diesel Risk Reduction Plan, the Statewide Portable Equipment Registration Program, and the Diesel Off-Road Reporting System.

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by OEHHA. CARB estimates that about 70 percent of the cancer risk that the average Californian faces from breathing toxic air pollutants stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimated that diesel particle levels measured in California's air in the year 2000 could cause 540 "excess" cancers in a population of one million people over a 70-year lifetime. Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated cancer risks from diesel exhaust similar to those developed by OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

Diesel engines are a major source of fine particulate pollution. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particulate pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, diesel exhaust particles have been identified as a carcinogen.

Benzene

Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract. Redness and blisters may result from dermal exposure to benzene. Chronic inhalation of certain levels of benzene causes blood disorders because benzene specifically affects bone marrow, which produces blood cells. Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.

2.1.4 *Ambient Air Quality*

Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. The California Air Resources Board (CARB) maintains more than 60 monitoring stations throughout California. The Glenn County - Willows air quality monitoring station, located approximately 16 miles south of the Project Site, monitors concentrations of O_3 and PM_{10} and the Chico East Avenue monitoring station, located approximately 20 miles east of the Project Site monitors for $PM_{2.5}$. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the Project Area.

Table 2-2 summarizes the published data concerning O_3, PM_{10} and $PM_{2.5}$ from the Glenn County Willows and Chico East Avenue air quality monitoring stations between 2018 and 2020 for each year that the monitoring data is provided. The historical air quality is compared to state and federal standards which are explained in detail below. O_3, PM_{10} and $PM_{2.5}$ are the pollutants of greatest concern in the Project region due to attainment issues. State and federal concentrations are different due to different attainment determination calculations. Days over standard for some PM measurements are not whole numbers as they are estimated using samples from USEPA recommended three ($PM_{2.5}$) and six (PM_{10}) day sampling schedules.

Table 2-2. Summary of Ambient Air Quality Data

Pollutant Scenario	Standard (State/Federal)	Value (State/Federal)		
		2018	2019	2020
Glenn County Willows Monitoring Station				
Max 1-Hour O_3 Concentration (ppm)	0.090/--[1]	0.079/--	0.072/--	0.072/--
Days over 1-Hour O_3 Standard		0/0	0/0	0/0
Max 8-Hour O_3 Concentration (ppm)	0.070/ 0.070	0.064/0.063	0.061/0.060	0.062/0.061
Days over 8-hour O_3 Standard		0/0	0/0	0/0
Max 24-hour PM_{10} Concentration (μg/m³)	50/150	**230.2/215.7**	**126.2**/125.8	**181.0/182.8**
Days over 24-Hour PM_{10} Standard		**59.7/1.1**	**23.1/**0	*/**1.1**
Annual PM_{10} Concentration[2] (μg/m³)	20/--[1]	**30.7**/29.5	**20.5**/19.8	*/30.5
Chico East Avenue Monitoring Station				
Max 24-hour $PM_{2.5}$ Concentration (μg/m³)	--[1]/35	--/**411.7**	--/34.6	--/**329.3**
Days over 24-Hour $PM_{2.5}$ Standard		--/**18.8**	--/0	--/**33.6**
Annual $PM_{2.5}$ Concentration[2] (μg/m³)	12/12	**18.1/13.7**	*/7.0	**16.1/15.9**

Notes: * There was insufficient (or no) data to determine the value (CARB 2020a).
(1) Currently no standard for this category
(2) A bold value signifies that this category is above the applicable standard.
Sources: CARB iADAM: Air Quality Data Statistics (https://www.arb.ca.gov/adam/index.html)
https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. Acceptable exceedances of the maximum value vary for the National Ambient Air Quality Standards (NAAQS) from 4th highest concentration for the 8-hour O_3 standard to 99th percentile for the SO_2 standard. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The Glenn County region is designated as a nonattainment or unclassified area for all federal standards yet is designated a nonattainment area for the state PM_{10} standard (CARB 2019) as shown in Table 2-3 below.

Table 2-3. Attainment Status of Criteria Pollutants in the Glenn County Portion of the NSVAB

Pollutant	State Designation	Federal Designation
O_3	Attainment	Unclassified/Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Attainment	Unclassified/Attainment
CO	Unclassified	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

Source: CARB 2019

2.1.5 *Sensitive Receptors*

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive land uses to the Project Site are a single-family residence to the north, the Orland Oaks mobile home park to the northwest, and rural residences to the southwest of the Project Site. Figure 1 of this document presents the Project Area in respect to the surrounding land uses.

2.2 Regulatory Framework

2.2.1 *Federal*

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide (CO_2) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the Glenn County portion of the NSVAB for the criteria pollutants.

Section 112 of the CAA Amendments governs the federal control program for HAPs. NESHAPs are issued to limit the release of specified HAPs from specific industrial sectors. These standards are technology-based, meaning that they represent the best available control technology an industrial sector could afford. The level of emissions controls required by NESHAPs are not based on health risk considerations because allowable releases and resulting concentrations have not been determined to be safe for the general public. The CAA does not establish air quality standards for HAPs that define legally acceptable concentrations of these pollutants in ambient air.

2.2.2 *State*

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

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State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The *NSVAB Air Quality Attainment Plan* constitutes the current SIP for the Glenn County portion of the NSVAB. The plan is updated on a triennial basis and was last updated in 2018. It presents comprehensive strategies to reduce the O_3 precursor pollutants (ROG and NOx) from stationary, area, mobile, and indirect sources.

CARB's statewide comprehensive air toxics program was established in 1983 with AB 1807 the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by Senate Bill (SB) 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Diesel Risk Reduction Plan

The identification of DPM as a TAC in 1998 led CARB to adopt the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (Risk Reduction Plan) in October 2000. The Risk Reduction Plan's goals included an 85 percent reduction in DPM by 2020 from the 2000 baseline (CARB 2000). The Risk Reduction Plan includes regulations to establish cleaner new diesel engines, cleaner in-use diesel engines (retrofits), and cleaner diesel fuel.

Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM) and oxides of nitrogen emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks must be retrofitted with PM filters beginning January 1, 2012, and older trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses would need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. Small fleets with three or fewer diesel trucks can delay compliance for heavier trucks by reporting and there are a number of extensions for low-mileage construction trucks, early PM filter retrofits, adding cleaner vehicles, and other situations. Privately and publicly owned school buses have different requirements.

2.2.3 *Local*

Glenn County Air Quality Management District

In Glenn County, the air quality regulating authority is the GCAPCD, which adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs. The district also regulates agricultural burning. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality. The GCAPCD develops regulations to improve air quality and protect the health and welfare of Glenn County residents and their environment. GCAPCD rules and regulations (CARB 2013) most applicable to the Project Area include, but are not limited to, the following:

> Article IV, Section 76, Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:
>
> A. as dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
>
> B. of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection “A” above.

Article IV, Section 78, Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public of which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

Article IV, Section 85, Particulate Matter Concentration. Except for emissions from agricultural operations, no person shall discharge into the atmosphere from any source particulate matter in excess of 0.3 grains per cubic foot of gas at standard conditions.

The GCAPCD has stringent requirements for the control of gasoline vapor emissions from gasoline-dispensing facilities. GCAPCD Sec 98. *AIRBORNE TOXIC CONTROL MEASURE: RETAIL SERVICE STATIONS,* prohibits the prohibits the transfer or allowance of the transfer of gasoline into stationary tanks at a gasoline-dispensing facility unless a CARB-certified Phase I vapor recovery system is used; and further prohibits the transfer or allowance of the transfer of gasoline from stationary tanks into motor vehicle fuel tanks at a gasoline-dispensing facility unless a CARB-certified Phase II vapor recovery system is used during each transfer. Vapor recovery systems collect gasoline vapors that would otherwise escape into the air during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Phase I vapor recovery system components include the couplers that connect tanker trucks to the underground tanks, spill containment drain valves, overfill prevention devices, and vent pressure/vacuum valves. Phase II vapor recovery system components include gasoline dispensers, nozzles, piping, break away, hoses, face plates, vapor processors, and system monitors. Section 98 also requires fuel storage tanks to be equipped with a permanent submerged fill pipe and the storage tank which prevents the escape of gasoline vapors.

2.3 Air Quality Emissions Impact Assessment

2.3.1 *Air Quality Thresholds of Significance*

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan.

2) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

3) Expose sensitive receptors to substantial pollutant concentrations.

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

Implementations of the Proposed Project could result in air quality impacts during construction and operations. Neither the City of Orland nor GCAPCD have established air pollution thresholds under CEQA for the assessment of air quality impacts. Therefore, the Project emissions will be compared with the thresholds established in Sacramento County. As with Glenn County and the Proposed Project Site, Sacramento County is located within the Sacramento Valley Air Basin and thus possesses similar air circulation patterns and temperature inversion layers. Therefore, air quality thresholds of significance developed in that county are appropriate. While air quality standards established in Sacramento County are not binding on Glenn County, they are instructive for comparison purposes. The air quality standards established in Sacramento County are promulgated by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and are consistent with the CCAA. The thresholds of significance are summarized in **Table 3.2-4**.

Table 2-4. SMAQMD Criteria Pollutant Regional Significance Thresholds

Air Pollutant	Construction-Related Emissions		Operational-Related Emissions Daily (lbs/day)
	Daily (lbs/day)	Annual (tons per year)	
ROG	--	--	65
NOx	85	--	65
PM_{10}	80	14.6	80
$PM_{2.5}$	82	15	82

Source: SMAQMD 2020

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulatively considerable.

Health Risk Thresholds of Significance

As with Criteria Pollutants, the GCAPCD has not set fourth thresholds for health risk, thus the SMAQMD thresholds will be used to determine what constitute an exposure of substantial air toxics are as follows.

- Cancer Risk: Emit carcinogenic or toxic contaminants that exceed the maximum individual cancer risk of 10 in one million.
- Non-Cancer Risk: Emit toxic contaminants that exceed the maximum hazard quotient of 1 in one million.

Cancer risk is expressed in terms of expected incremental incidence per million population. The SMAQMD has established an incidence rate of 10 persons per million as the maximum acceptable incremental cancer risk due to TAC exposure. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulative impact. The 10-in-one-million standard is a very health-protective significance threshold. A risk level of 10 in one million implies a likelihood that up to 10 persons out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of TACs over a specified duration of time. This risk would be an excess cancer that is in addition to any cancer risk borne by a person not exposed to these air toxics. To put this risk in perspective, the risk of dying from accidental drowning is 1,000 in a million, which is 100 times more than the SMAQMD's threshold of 10 in one million.

The SMAQMD has also established non-carcinogenic risk parameters for use in HRAs. Noncarcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less than significant.

2.3.2 *Air Quality Impact Methodology*

Air quality impacts were assessed in accordance with methodologies recommended by the SMAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Glenn County. According to KD Anderson & Associates (2021), the Project would result in 4,702 (1,994 primary) trips per day during normal operations. Operational air pollutant emissions are calculated based on the estimated traffic trip generation rates provided by KD Anderson & Associates (KDA 2021). Lastly, CalEEMod does not account for ROG emissions associated with gasoline vapors that are released during fuel dispensing activities. In order to calculate these emissions, the CAPCOA's *Gasoline Service Station Industry Wide Risk Assessment Guidelines* (1997) is employed.

Additionally, DPM and gasoline vapor concentrations associated with heavy-duty trucks and the proposed gasoline dispensing station as a result of Project operations were modeled using the HARP2 model provided by CARB, with regulatory default settings, to perform the dispersion and health risk modeling for this analysis. HARP2 implements the latest regulatory guidance to develop inputs to the U.S. EPA AERMOD dispersion model for dispersion and as the inputs for calculations for the various health risk levels. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

2.3.3 *Impact Analysis*

Project Construction-Generated Criteria Air Quality Emissions

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., tractors, forklifts, pavers), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities.

Construction-generated emissions associated the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 2-5. Construction-generated emissions are short-term and of temporary duration, lasting only if construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SMAQMD's thresholds of significance.

Table 2-5. Construction-Related Project Emissions

Construction Year	ROG		NO_X		CO		PM_{10}		$PM_{2.5}$	
	Daily (lbs)	Annual (tons)	Daily (lbs)	Annual (tons)	Daily (lbs)	Annual (tons)	Daily (lbs)	Annual (tons)	Daily (lbs)	Annual (tons)
2022	2.97	0.13	29.28	1.40	31.67	1.36	4.7546	0.1133	2.66	0.08
2023	6.79	0.16	20.23	0.56	23.20	0.69	1.0680	0.0315	0.96	0.03
SMAQMD Threshold	*None*	*None*	*85*	*None*	*None*	*None*	*80*	*14.6*	*82*	*15*
Exceeded Threshold?	**No**	**No**	**No**	**No**	NA	NA	**No**	NA	NA	NA

Source: CalEEMod version 2020.4.0

As shown in Table 2-5, emissions generated during Project construction would not exceed the SMAQMD's thresholds of significance. Therefore, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standards and therefore no substantial health risks would occur. Emissions for SO_2 were also calculated by CalEEMod but are minimal (> 0.005 tons per year and > 0.05 lbs/day) and can be found in Attachment A of this document.

Project Operations Criteria Air Quality Emissions

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10} and O_3 precursors such as ROG and NO_X. Operational-generated emissions associated with the Proposed Project were calculated using CalEEMod. Predicted maximum annual operational-generated emissions of criteria air pollutants for the Proposed Project are summarized in Table 2-6.

Table 2-6. Operation-Related Project Emissions										
Operational Emissions	**ROG Daily (lbs)**		**NO_X Daily (lbs)**		**CO Daily (lbs)**		**PM_{10} Daily (lbs)**		**$PM_{2.5}$ Daily (lbs)**	
	Summer	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**
Area	26.34	26.34	0	0	0	0	0	0	0	0
Energy	0	0	0.03	0.03	0.02	0.02	0.002	0.002	0.002	0.002
Mobile	10.24	7.52	21.83	24.32	65.62	67.90	13.90	13.90	3.85	3.85
Total	10.49	7.76	21.85	24.34	65.64	67.92	13.90	13.90	3.85	3.85
SMAQMD Threshold	*65*	*65*	*65*	*65*	*None*	*None*	*80*	*80*	*82*	*None*
Exceeded Threshold?	**No**	**No**	**No**	**No**	**NA**	**NA**	**No**	**No**	**NA**	**NA**

Source: CalEEMod version 2020.4.0

Area source emissions for the gasoline station include ROG released gasoline vapor during dispensing activities. Gasoline vapor emissions are calculated based on an emission factor of 1.27 pounds per 1,000 gallons of gasoline dispensed (CAPCOA 1997) and the prediction of 7,500,000 gallons of gasoline dispensed annually as provided by the Project applicant [(7,500,000/1,000) x 1.27 = 9,525 pounds annually. 4,572 /365) = 26.09 pounds daily].

As shown in Table 2-6, daily emissions associated with Project operations would not exceed the SMAQMD significance thresholds.

Conflict with the 2018 Air Quality Attainment Plan

The North Sacramento Valley Planning Area (NSVPA) 2018 Air Quality Attainment Plan (AQAP) is the most recent air quality planning document covering Glenn County. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards for ozone and particulate matter. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. The NSVPA 2018 AQAP includes forecast ROGs and NO_x emissions (O_3 precursors) for the entire NSVPA region through the year 2020. These emissions are not appropriated by county or municipality.

Criteria for determining consistency with the 2018 AQAP are defined by the following indicators:

- *Consistency Criterion No. 1*: The Proposed Project would not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQAP.
- *Consistency Criterion No. 2*: The Proposed Project would not exceed the assumptions in the AQAP.

The violations to which Consistency Criterion No. 1 refers are the California ambient air quality standards and the national ambient air quality standards. The Project would not exceed the short-term construction standards (see Table 2-5) or long-term operational standards (see Table 2-6) and in so doing would not violate any air quality standards.

Concerning Consistency Criterion No. 2, the AQAP contains air pollutant reduction strategies and demonstrates that the applicable ambient air quality standards can be achieved within the time frames required under federal law. Growth projections from local general plans adopted by cities in the district are used to develop regional growth forecasts that are used to develop future air quality forecasts for the NSVPA 2018 AQAP. Development consistent with the growth projections in the City of Orland General Plan is considered to be consistent with the 2018 AQAP. The Project Site is currently zoned in the Glenn County General Plan as Service Commercial. The proposed prezoning of the parcels in the City of Orland General Plan (2010) are Highway Commercial (C-H) and Community Commercial (C-2). Therefore, the Project Site is currently anticipated for commercial land uses under the Glenn County General Plan as well as the City of Orland General Plan. Thus, the Project is consistent with the regional growth anticipated by the AQAP and thereby consistent with the second criterion. The Project would not hinder implementation of any NSVPA Air Quality Attainment Plan control measures.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Project-generated emissions of DPM, ROG, NOx, PM_{10} and $PM_{2.5}$ from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the NSVAB which encompasses the Project area is designated as a nonattainment or unclassified area for all federal standards yet is designated a nonattainment area for the state PM_{10} standard (CARB 2019). Thus, PM_{10}levels in the Glenn County portion of the NSVAB are at unhealthy levels during certain periods. However, as shown in Table 2-5, the Project would not exceed the SMAQMD significance thresholds for any criteria air pollutant emissions, including PM_{10}.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in significant O_3 precursor emissions (ROG or NOx) according to Project significance thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions more than any common significance thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the TAC of concern. The potential cancer risk from the inhalation of DPM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. PM_{10} exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM.

Based on the emission modeling conducted, the maximum onsite construction-related daily emissions of exhaust PM_{10}, considered a surrogate for DPM and includes emissions of exhaust $PM_{2.5}$, would be 1.42 pounds per day during construction (see Attachment A). PM_{10} exhaust is considered a surrogate for DPM as most of the construction equipment (by total horsepower) is diesel fueled. The Project would not generate emissions of PM_{10} (or $PM_{2.5}$) that would exceed significance thresholds. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the Project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operational Air Contaminants

Operation of the Proposed Project would result in the development of sources of air toxins. Specifically, the Project would be a source of gasoline vapors such as benzene, ethyl benzene, n-hexane, naphthalene, propylene (or propene), xylenes, and toluene. Additionally, the Project would be a source of DPM generated by Project vehicular traffic exiting and entering I-5 and traveling on local roadways to the Project Site.

CARB identifies benzene as the primary TAC of concern associated with gas stations. Benzene is highly carcinogenic and occurs throughout California. According to CAPCOA, benzene is the most important substance driving cancer risk, while xylene, another air toxic associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA, not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. The GCAPCD has stringent requirements for the control of gasoline vapor emissions from gasoline-dispensing facilities. GCAPCD Sec 98. *AIRBORNE TOXIC CONTROL MEASURE: RETAIL SERVICE STATIONS,* prohibits the prohibits the transfer or allowance of the transfer of gasoline into stationary tanks at a gasoline-dispensing facility unless a CARB-certified Phase I vapor recovery system is used; and further prohibits the transfer or allowance of the transfer of gasoline from stationary tanks into motor vehicle fuel tanks at a gasoline-dispensing facility unless a CARB-certified Phase II vapor recovery system is used during each transfer. Vapor recovery systems collect gasoline vapors that would otherwise escape into the air during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Phase I vapor recovery system components include the couplers that connect tanker trucks to the underground tanks, spill containment drain valves, overfill prevention devices, and vent pressure/vacuum valves. Phase II vapor recovery system components include gasoline dispensers, nozzles, piping, break away, hoses, face plates, vapor processors, and system monitors. Section 98 also requires fuel storage tanks to be equipped with a permanent submerged fill pipe and the storage tank which prevents the escape of gasoline vapors. Stationary sources having the potential to emit TACs, including gas stations, are required to obtain permits from the GCAPCD. Permits may be granted to these operations provided they are operated in accordance with applicable GCAPCD rules and regulations. GCAPCD's permitting procedures require substantial control of emissions, and permits are not issued unless TAC risk screening or TAC risk assessment can show that risks are not significant. In addition, California has statewide limits on the benzene content in gasoline, which greatly reduces the toxic potential of gasoline emissions.

Additionally, CARB identified DPM as a TAC in 1998. Mobile sources (including trucks, buses, automobiles, trains, ships, and farm equipment) are by far the largest source of diesel emissions. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Diesel exhaust is composed of two phases, either gas or particulate – both contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particulate phase has many different types that can be classified by size or composition. The sizes of diesel particulates of greatest health concern are fine and ultrafine particles. These particles may be composed of elemental carbon with adsorbed compounds such as organics, sulfates, nitrates, metals, and other trace elements. Diesel exhaust is emitted from a broad range of on- and off-road diesel engines.

Since the Proposed Project would result in the development of sources the air toxins, benzene, ethyl benzene, n-hexane, naphthalene, propylene (or propene), xylenes, and toluene (collectively referred to as gasoline vapor), and DPM, a health risk assessment (HRA) has been prepared. This HRA evaluates the potential health risks associated Project gasoline vapors from the gasoline dispensing station as well as DPM generated by vehicular traffic exiting and entering Interstate 5 (I-5) and traveling on local roadways to and from the Project Site. This HRA was prepared in accordance with the requirements of the Office of Environmental Health Hazard Assessment (OEHHA) to determine if health risks are likely to occur to existing residences in the vicinity of the Proposed Project. Technical data is included as Attachment B and Attachment C.

Health Risk Methodology

This HRA evaluates the potential exposure of residential, worker, and sensitive receptors within a half mile radius of the Project Site to TACs generated by the vehicular traffic and gasoline storage and distribution related to the Project operations. The HARP2 model, which is provided by CARB with regulatory default settings, was used to perform the dispersion and health risk modeling for this analysis. HARP2 implements the latest regulatory guidance to develop inputs to AERMOD for dispersion and as the inputs for calculations for the various health risk levels. Conservative estimates and information from the traffic impact analysis memorandum (KDA 2021) were used to model Project operations.

Project related traffic source locations include the on and off ramps of the I-5 North and South, and east and west bound traffic on Newville Road (SR-32) and can be viewed in Figure B-3 of Attachment B. Gas station emissions are also included in the analysis for fuel storage, loading and spillage.

The Project gasoline dispensing facility is accommodated by an underground gasoline storage tank near the filling stations. An above ground diesel tank is also proposed, though it is noted that diesel tank emissions are substantially less than emissions from gasoline filling operations and were not quantified in this analysis.

Out of the compounds emitted from the gasoline stations, benzene is the TAC which drives the risk, accounting for 87 percent of cancer risk from gasoline vapors, while xylene is the only substance which is associated with acute adverse health effects. According to CAPCOA Gasoline Service Station Industrywide Risk Assessment Guidelines (1997), not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. However, for completeness the emissions from the eight TACs with the highest associated health risk were modeled in this analysis.

The air dispersion modeling for the HRA was performed using the U.S. EPA AERMOD Version 19121 dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources. The orland30m.dem file found at CARB's website for HARP Digital Elevation Model Files were used for elevation data for all sources and receptors in the project domain. All regulatory defaults were used for dispersion modeling.

AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Pre-processed meteorological data files provided by CARB for the Red Bluff Airport were selected as being the most representative meteorology based on proximity (CARB 2021a). CARB utilized the closest available Upper Air and AERMET to process the data. A wind rose and the location of the Red Bluff Airport wind sensor can be found in Figures B-1 and B-2, respectively in Attachment B of this report.

Project related roadway sources were entered into AERMOD as adjacent volume sources. Emissions from fuel tank loading and breathing were modeled as point sources and emissions from fuel spillage and vehicle loading were estimated as area sources per the proposed pump location. The unit emission rate of one gram per second was utilized in AERMOD to output plot files which established source receptor relationships later to be combined in HARP with the emissions inventory to calculate the ground level concentrations (GLCs) related to Project operations. All AERMOD inputs and output file can be found in Attachment C and the AERMOD plot and AERMET files can be found in the supplemental data package submitted with this report.

Emissions sources in the model include exhaust emissions from diesel traffic associated with the Project and emissions from Project gasoline fueling operations. Emissions from diesel traffic were modeled for all Project related traffic within a quarter mile radius of the Project Area, this included on and offramp traffic from the I-5 and traffic on Newville Road. Per the traffic analysis, all I-5 traffic is considered an existing source of emissions unaffected by Project operations and therefore not included in the analysis. Average daily and peak hourly trips were gathered from the traffic assessment (KDA 2021). The fleet mix used to calculate the percentage of diesel vehicles associated with this Project was derived from the CalEEMod default for gas stations in Glenn County. Then emission factors for PM_{10} generated from CARB's current on-road emission model EMFAC2021 were used to conservatively estimate DPM emissions from Project trucks. One minute of idling was estimated for every ten miles traveled. All EMFAC2021 output files can be found in the supplemental information submitted with this report.

Emissions sources also include fuel storage tanks and fuel dispensers at the gasoline dispensing facility located adjacent to the proposed Project Site. The estimated annual gasoline throughput at this gasoline dispensing facility was 4,000,000 gallons (diesel tank emissions are substantially less than emissions from gasoline filling operations and were not quantified in this analysis). The specific processes associated with fuel storage tanks and fuel dispensers that emit air toxics include loading, breathing, refueling, and spillage, as described below:

- Loading – Emissions occur when a fuel tanker truck unloads gasoline into the storage tanks. The storage tank vapors, displaced during loading, are emitted through its vent pipe. (A required pressure/vacuum valve installed on the tank vent pipe significantly reduces these emissions.)
- Breathing – Emissions occur through the storage tank vent pipe as a result of temperature and pressure changes in the tank vapor space.
- Refueling – Emissions occur during motor vehicle refueling when gasoline vapors escape through the vehicle/nozzle interface.
- Spillage – Emissions occur from evaporating gasoline that spills during vehicle refueling.

Loading and breathing emissions exit the underground storage tank vent pipe and are thus treated as a point source. The height and diameter of the vent are assumed to be 3.7 meters and 0.05 meters, respectively. Refueling and spillage emissions are modeled as volume sources with horizontal and vertical dimensions consistent with the modeling parameters of 4 meters high by 13 meters wide. For refueling, the release height is assumed to be 1 meter to approximate the height of a vehicle fuel tank inlet, whereas spillage emissions are assumed to be released at ground level since nearly all the gasoline from spillage reaches the ground.

Emissions were calculated for peak one (1)-hour, 24-hour and annual average daily ROG concentrations in micrograms per cubic meter [µg/m3] at the Proposed Project Site. Note that the concentration estimates developed using this methodology is considered conservative and is not a specific prediction of the actual concentrations that would occur at any one point in time. Actual 24-hour and annual average concentrations are dependent on many variables, particularly the number and type of equipment working at specific distances during time periods of adverse meteorology. A speciation profile found on CARB's 2021 Draft Gasoline Service Station Industrywide Risk Assessment Technical Guidance was used to determine the TAC content in the emitted ROGs for each of the applicable TACs. Per the Risk Assessment Guidelines TAC concentrations from benzene, ethyl benzene, n-hexane, naphthalene, propylene (or propene), xylenes, and toluene were calculated and all other TAC emissions were considered negligible.

All emission calculations are available in Attachment C of this document.

Health Risk Estimation

A health risk computation was performed to determine the risk of developing an excess cancer and chronic non-cancer risk calculated for 70-year and 30-year for exposure scenarios for residents and a 25-year exposure scenario for workers. Per OEHHA guidance, the 25-year scenario was used to model the health risk for workers at business locations and the 70 and 30 year scenarios were used for residents at in residential areas. The chronic, acute and carcinogenic health risk calculations are based on the standardized equations contained in the OEHHA Guidance Manual (2015) as implemented in CARB's

HARP2 program. The risk associated with traffic emissions and fuel dispensing activities related to Project operations was assessed for risk to vicinity receptors.

Based on the OEHHA methodology, the inhalation cancer risk from the annual average DPM, and benzene concentrations are calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor (ASF), the frequency of time spent at home, and the exposure duration divided by averaging time, to yield the excess cancer risk. These factors are discussed in more detail below. It is important to note that exposure duration is based on continual Project traffic and continual gasoline dispensing operations . Cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure.

Exposure through inhalation (Dose-air) is a function the breathing rate, the exposure frequency, and the concentration of a substance in the air. For residential exposure, the breathing rates are determined for specific age groups, so Dose-air is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. To estimate cancer risk, the dose was estimated by applying the following formula to each ground-level concentration:

Dose-air = (Cair * {BR/BW} * A * EF * 10-6)

Where:

Dose-air = dose through inhalation (mg/kg/day)

Cair = air concentration (µg/m3) from air dispersion model

{BR/BW} = daily breathing rate normalized to body weight (L/kg body weight – day) (225 L\kg BW-day for 3rd Trimester, 658 L/kg BW-day for 0<2 years, 535 L/kg BW-day for 2<9 years, 452 L/kg BW-day for 2<16 years, 210 L/kg BW-day for 16<30 years, and 185 L/kg BW-day 16<70 years)

A = Inhalation absorption factor (unitless [1])

EF = exposure frequency (unitless), days/365 days (0.96 [approximately 350 days per year])

10-6 = conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to take into account the increased sensitivity to carcinogens during early-in-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood and an ASF of 1 for ages 16 through 70 years.

Fraction of time at home (FAH) during the day is used to adjust exposure duration and cancer risk from a specific facility's emissions, based on the assumption that exposure to the facility's emissions are not occurring away from home. OEHHA recommends the following FAH values: from the third trimester to age <2 years, 85 percent of time is spent at home; from age 2 through <16 years, 72 percent of time is spent at home; from age 16 years and greater, 73 percent of time is spent at home.

To estimate the cancer risk, the dose is multiplied by the cancer potency factor, the ASF, the exposure duration divided by averaging time, and the frequency of time spent at home (for residents only):

Riskinh-res = (Doseair * CPH * ASF * ED/AT * FAH)

Where:

Riskinh-res = residential inhalation cancer risk (potential chances per million)

Doseair = daily dose through inhalation (mg/kg-day)

CPF = inhalation cancer potency factor (mg/kg-day-1)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration (in years) for a specified age group (0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70)

AT = averaging time of lifetime cancer risk (years)

FAH = fraction of time spent at home (unitless)

According to OEHHA, if multiple substances are analyzed, the cancer risk from each of the individual substances is summed to give the total cancer risk for the receptor location. Cancer risks from different substances are treated additively in the Hot Spots Program in part because many carcinogens act through the common mechanism of DNA damage. However, this assumption fails to take into account the limited information on substance interactions. However, the overall uncertainty in the cancer potency factors and the variability in the human population is probably far greater than the uncertainty from the assumption of additivity.

Non-cancer chronic impacts are calculated by dividing the annual average concentration by the Reference Exposure Level (REL) for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The following equation was used to determine the non-cancer risk:

Hazard Quotient = Ci/RELi

Where:

Ci = Concentration in the air of substance i (annual average concentration in $\mu g/m^3$)

RELi = Chronic noncancer Reference Exposure Level for substance i ($\mu g/m^3$)

The potential for acute non-cancer hazards is evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is similar to the procedure for chronic non-cancer impacts. The equation is as follows:

Acute HQ = Maximum Hourly Air Concentration ($\mu g/m^3$) / Acute REL ($\mu g/m^3$)

According to OEHHA, if multiple substances are emitted, the non-cancer risk from each of the individual substances is summed only if they affect same organ system. While DPM is particularly associated with increased potential for lung cancer, diesel exhaust has many individual substances contained in it, including gasoline vapor. Therefore, the non-cancer risk from each of the emitting substances, DPM and gasoline vapor, are summed to give the total non-cancer risk at vicinity receptors from Proposed Project operations.

Health Risk Impact Analysis

Cancer risk calculations for vicinity residences are based on 70-, 30-, and 9-year exposure periods to continual traffic exhaust from all Project related traffic within .25 mile of the Project Site and continual gasoline dispensing operations. As described above, the calculated cancer risk accounts for 350 days per year of exposure to vicinity receptors. While the average American spends 87 percent of their life indoors (USEPA 2001), neither the pollutant dispersion modeling nor the health risk calculations account for the reduced exposure structures provide. Instead, health risk calculations account for the equivalent exposure of continual outdoor living. The calculated carcinogenic risk at the Project Site is depicted in Table 2-7.

Table 2-7. Cancer Risk by Pollutant

Exposure Scenario	Benzene	DPM	Ethyl Benzene	Naphthalene	Total Risk
70-Year Exposure MEIR	0.27	3.40	0.0055	0.0003	3.675
30-Year Exposure MEIR	0.23	2.86	0.0046	0.0003	3.094
25-Year Exposure MEIW	0.009	0.62	0.0002	0.00001	0.629
9-Year Exposure (School)	0.002	0.029	0.00004	0.000002	0.031
				Significance Threshold	10

As shown, impacts related to cancer risk for all modeled scenarios at the Project Site would be below the 10 in one million threshold. These calculations do not account for any pollutant-reducing remedial components inherent to the Project or the Project Site. The Maximumly Exposed Individual Resident (MEIR) receptor is located directly north of the site and has a 70-year cancer risk of 3.40 related to the Project. The Maximumly Exposed Individual Worker (MEIW) is located at the business park to the north and across the I-5 freeway with a 25-year cancer risk of 0.62 in one million. The locations of cancer risk MEIR and MEIW can be seen in Figure B-3 found in Attachment B of this document. Detailed cancer risk results for all modeled receptors can be found in Attachment C of this document.

In addition to cancer risk, the significance thresholds for TAC exposure requires an evaluation of non-cancer risk stated in terms of a hazard index. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The potential for acute non-cancer hazards is evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is similar to the procedure for chronic non-cancer impacts.

An acute or chronic hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the acute or chronic exposure by the REL. The highest maximum chronic and acute hazard indexes for residents, workers and school children at the Proposed Project site as a result of DPM and gasoline vapor exposure is shown in Table 2-8.

Table 2-8. Non-Carcinogenic Health Risk Summary

Exposure Scenario	Maximum Residential Hazard	Maximum Worker Hazard	Maximum Sensitive Receptor Hazard
Chronic Hazard Index	0.0015	0.0027	0.0001
Acute Hazard Index	0.247	0.285	0.015
SMAQMD Significance Threshold	1.0	1.0	1.0

As shown in Table 2-8, impacts related to non-cancer risk (chronic and acute hazard index) at the Project Site would not surpass significance thresholds. The MEIR for both chronic and acute is located at the residence directly north of the Project Site. The MEIW for both chronic and acute hazard is located at the Pilot Filling station to the west of Project Site. The locations of the MEIR and MEIW for both chronic and acute hazard can be seen in Figure B-4 found in Attachment B of this document. Detailed modeling results for chronic and acute risk are shown in Attachment B of this document and in the supplemental materials submitted with this report.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the NSVAB is designated as in attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District's (SCAQMD's) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the

SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting the Los Angeles, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District, the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The Project is anticipated to generate approximately 4,702 average daily trips. There is no likelihood of the Project traffic exceeding CO values.

Odors

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any of these uses considered to be associated with odors; however, the Project does propose to include an RV wastewater dumping station and a high-turnover quick service restaurant, which are a potential source of odors that may affect certain people.

The Project proposes the construction of an RV dump station on Site. This sewage discharge facility would be installed in a manner consistent with all local, state and federal regulations as applicable. Specifically, the State Water Resource Control Board (SWRCB) Title 27 and the California Integrated Waste Management Board (CIWMB) Division 2 regulate the treatment, storage, processing, and disposal of solid waste. Because the Project Site is located within a municipality, the waste discharged at the facility would be required to discharge into the municipal sewage system and all hookups from the visiting RV to the sewage system would comply with all applicable regulations put in place to minimize harmful impacts to people and the environment, including the release of odors. .

Cooking odors (molecules) generated by the combustion of animal and vegetable matter result in a complex mixture of reactive odorous gases. A small percentage of these odors may be absorbed by the grease particles, but the vast majority exists separately in the airstream.

The two common methods of abating odor from cooking are (1) the use of an odor oxidant (potassium permanganate) that oxidizes the molecules to solids and then retains them; and (2) a spray odor neutralizer system. Either of the above-mentioned types of odor control can remove 85 to 90 percent of the molecules, depending on the type of cooking. However, determining the efficiency of odor control is subjective, as testing is usually conducted by people rather than machines.

The restaurant use would be required to comply with all state regulations associated with cooking equipment and controls, such as grease filtration and removal systems, exhaust hood systems, and blowers to move air into the hood systems, through air cleaning equipment, and then outdoors. The proposed restaurant use would be equipped with kitchen exhaust systems and pollution/odor control systems. Pollution/odor control systems typically include smoke control, odor control, and exhaust fan sections. Such equipment would ensure that pollutants associated with smoke and exhaust from cooking surfaces would be captured and filtered, allowing only filtered air to be released into the atmosphere. Because the Project developer is responsible for complying with all local, state, and federal regulations regarding odors emitted by RV wastewater/sewage dump stations and quick-service restaurant being, this impact is found to be less than significant.

3 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Summary of Greenhouse Gases	
Greenhouse Gas	**Description**
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about 12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: (1) USEPA 2016a; (2) USEPA 2016b; (3) USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.1.1 *Sources of Greenhouse Gas Emissions*

In 2021, CARB released the 2021 edition of the California GHG inventory covering calendar year 2019 emissions. In 2019, California emitted 418.2 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for approximately 40 percent of total GHG emissions in the State. When emissions from extracting, refining and moving transportation fuels in California are included, transportation is responsible for over 50 percent of statewide emissions in 2019. Continuing the downward trend from 2018, transportation emissions decreased 3.5 million metric tons of CO_2e in 2019, only being outpaced by electricity, which reduced emissions by 4.3 million metric tons of CO_2e in 2019. Emissions from the electricity sector account for 14 percent of the inventory and have shown a substantial decrease in 2019 due to increases in renewables. California's industrial sector accounts for the second largest source of the State's GHG emissions in 2019, accounting for 21 percent. (CARB 2021b.)

3.2 Regulatory Framework

3.2.1 *State*

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the State, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings

The Building and Efficiency Standards (Energy Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. These standards are a unique California asset that have placed the State on the forefront of energy efficiency, sustainability, energy independence and climate change issues. The 2019 Building Energy Efficiency Standards improve upon the 2016 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The 2019 standards are a major step toward meeting Zero Net Energy. The most significant efficiency improvement to the residential Standards includes the introduction of photovoltaic into the perspective package, improvements for attics, walls, water heating and lighting. Buildings permitted on or after January 1, 2020, must comply with the 2019 Standards.

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CalGreen Building Standard (CalGreen) and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. Like Part 6 of Title 24, the CalGreen standards are periodically updated, with increasing energy savings and efficiencies associated with each code update. CalGreen contains voluntary "Tier 1" and "Tier 2" standards that are not mandatory statewide but could be required by a City or County. These are 'reach' standards that can be adopted by local jurisdictions and may be incorporated as mandatory standards in future code cycles.

Mobile Source Strategy

In 2016 CARB released the updated to the Mobile Source Strategy. This demonstrates how the State will meet air quality standards, achieve GHG emission reduction targets, decrease health risks from transportation emissions, and reduce petroleum consumption over the next fifteen years. This includes engine technology that is effectively 90 percent cleaner than today's current standards, with clean, renewable fuels comprising half the fuels burned.

The strategy also relies on the increased use of renewable fuels to ensure that air pollutant reductions are achieved while meeting the ongoing demand for liquid and gaseous fuels in applications where combustion technologies remain, including in heavy-duty trucks and equipment and light-duty hybrid vehicles. Statewide, the Strategy would result in a 45 percent reduction of GHG emissions and a 50 percent reduction in the consumption of petroleum-based fuels.

Governor's Sustainable Freight Action Plan

Under the Governor's Sustainable Freight Action Plan strategy, CARB is working with agency partners and stakeholders to implement a broad program that includes regulations, incentives, and policies designed to support the transformation to a more sustainable freight system and reduce community impacts from freight operations in California. The Governor's Sustainable Freight Action Plan identifies strategies and actions to achieve a sustainable freight transportation system that meets California's environmental, energy, mobility, safety and economic needs. The Plan also identifies and initiates corridor-level freight pilot projects within the State's primary trade corridors that integrate advanced technologies, alternative fuels, freight and fuel infrastructure and local economic development opportunities. The plan seeks to improve the state freight system efficiency 25 percent by "increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030" as well as to deploy over 100,000 zero-emission freight vehicles and equipment and maximizing near-zero equipment and equipment powered by renewable energy by 2030.

3.3 Greenhouse Gas Emissions Impact Assessment

3.3.1 *Thresholds of Significance*

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to greenhouse gas emissions if it would:

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

2) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

The Appendix G thresholds for GHG's do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's greenhouse gas emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The City of Orland General Plan (2010) acknowledges the necessity to quantify, manage, and reduce its contributions to GHG emissions in order to help protect the health of the community, ecosystems, and biodiversity from the effects of climate change. Specifically, Policy 5.5.A aims to comply with the AB 32 Scoping Plan and its governing regulations to the full extent of the City's abilities, and Policy 5.5.G plans to continue to monitor the efforts of CARB and other organizations responsible for the preparation of GHG-reducing standards. However, neither the City of Orland nor the GCAPCD promulgate GHG emission thresholds. Therefore, the Project will be assessed for consistency with regulations or requirements adopted by the 2020 Glenn County Regional Transportation Plan, which establishes an overall GHG target for the Project region, and the California AB 32 Scoping Plan and subsequent updates.

Methodology

Where GHG emission quantification was required, emissions were modeled using CalEEMod, version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated GHG emissions were calculated using CalEEMod model defaults for Glenn County. According to the Traffic Impact Analysis Memorandum (TIAM) prepared by KD Anderson & Associates, Inc., the Project would result in 4,708 trips, with 1,994 being primary trips, per day during normal operations. Operational air pollutant emissions are calculated based on the estimated traffic trip generation rates provided by the TIAM.

3.3.2 *Impact Analysis*

In view of the above considerations, this assessment quantifies the Project's total annual GHG emissions.

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Site, and off-road construction equipment (e.g., backhoes, pavers, forklifts). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project.

Table 3-2. Construction Related Greenhouse Gas Emissions

Description	CO_2e Emissions (Metric Tons/Year)
Construction in Year One	220
Construction in Year Two	113
Project Construction Total	**333**

Sources: CalEEMod 2020.0.4.0

As shown in Table 3-2, Project construction would result in the generation of approximately 333 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. Furthermore, GHG emissions generated by the construction sector have been declining in recent years. For instance, construction equipment engine efficiency has continued to improve year after year. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower (hp) and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the USEPA, CARB, and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis- Con, and Yanmar). On August 27, 1998, the USEPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 hp and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. As a result, all off-road, diesel-fueled construction equipment manufactured in 2006 or later has been manufactured to Tier 3 standards. Tier 3 engine standards reduce precursor and subset GHG emissions such as nitrogen oxide by as much as 60 percent. On May 11, 2004, the USEPA signed the final rule introducing Tier 4 emission standards, which were phased in over the period of 2008-2015. The Tier 4 standards require that emissions of nitrogen oxide be further reduced by about 90 percent. All off-road, diesel-fueled construction equipment manufactured in 2015 or later will be manufactured to Tier 4 standards.

In addition, the California Energy Commission recently released the 2019 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code). The 2019 updates to the Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions, and alterations to existing buildings. For instance, effective January 1, 2017, owners/builders of construction projects have been required to divert (recycle) 65 percent of construction waste materials generated during the project construction phase. This requirement greatly reduces the generation of GHG emissions by reducing decomposition at landfills, which is a source of CH_4, and reducing demand for natural resources.

Long-term operational GHG emissions attributable to the Project are identified in Table 3-3.

Table 3-3. Operational-Related Greenhouse Gas Emissions

Description	**CO_2e Emissions (Metric Tons/Year)**
Area Source Emissions	0
Energy Emissions	12
Mobile Source Emissions	2,905
Waste Emissions	14
Water Emissions	1
Project Operations Total	**2,932**

Sources: CalEEMod 2020.0.4.0
Notes: Emission projections are predominantly based on CalEEMod model defaults for Glenn County. Onroad Source emissions data used in CalEEMod is based on average daily trip data from KD Anderson & Associates, Inc. (2021)

As shown in Table 3-3 Project operations would result in the generation of 2,932 metric tons of CO_2e annually. A large majority of these emissions would be generated by mobile sources, which is an emission source that cannot be regulated by the City. Additionally, GHG are global pollutants. They can be carried miles away from the original source and have long atmospheric lifetimes compared to that of local pollutants. GHG Emissions do not directly pose a threat to human health but can have numerous indirect effects. As previously stated, GHG emissions have been directly correlate to climate change. This can lead to events such as droughts, heat waves, increased intensity in storm events and rising sea levels. These can result in decrease precipitation, increased wildfires, saltwater infiltration of groundwater tables and decreased crop yields. A reduction of vehicle trips to and from the Proposed Project Site would reduce the amount of mobile emissions. Methods of reducing vehicle trips include carpooling, transit, cycling, and pedestrian connections. However, this Project is proposing a fueling center and convenience store. The reduction of vehicle trips is only feasible for the employees working in the facilities, though the majority of traffic trips instigated by the Project would be related to haul truck trips transporting freight.

As stated above, the State of California has implemented numerous strategies pertaining to trucks and the reduction of emissions that directly apply to the Project. Urban goods delivery is an essential component of the greater freight system and vital to the urban economy. While urban goods delivery represents a small share of urban traffic, it generates a disproportionate amount of GHG emissions. The State of California promulgates policies designed and implemented to improve the efficiency and environmental footprint of the urban freight system, including the introduction of zero and near-zero emission vehicles - a strategy embedded in the Governor's Sustainable Freight Action Plan as well as CARB's AB 32 Scoping Plan and Mobile Source Strategy.

Additionally, the Project Site is located approximately 925 feet west of the I-5, a major regional freeway corridor. Further, I-5 has been identified as a "Major International Trade Highway Route" in the California State Goods Movement Action Plan (2007) and therefore serves to accommodate existing truck trips along the interstate. The Goods Movement Action Plan is a statewide initiative to improve and expand California's goods movement industry and infrastructure in a manner which will increase mobility and relieve traffic congestion as well as reduce GHG emissions.

Generation of Greenhouse Gas Emissions Resulting in Conflicts with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

As previously described, the significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Specifically, the Project will be assessed for consistency with the 2020 Glenn County Regional Transportation Plan, which establishes an overall GHG target for the Project region, and the California AB 32 Scoping Plan and subsequent updates.

<u>Consistency with Glenn County's 2020 Regional Transportation Plan</u>

The Project is also assessed for consistency with the GHG-reducing provisions contained in the 2020 Regional Transportation Plan (RTP), which establishes an overall GHG target for the Project region consistent with California's 2030 GHG reduction goals of SB 32. Due to the relatively small size of Glenn County and low number of major transportation facilities, the regional transportation-related GHG target is to maintain current levels of emission without increase. The City of Orland is a member city of the Glenn County Transportation Commission (GCTC), which is the designated Regional Transportation Planning Agency for the County. GCTC's RTP, adopted February 20th, 2020, is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP serves as the planning blueprint to guide transportation investments in Glenn County involving local, State, and Federal funding over the next twenty years. Transportation improvements in the RTP are identified as short-term (2020 - 2030) or long-term (2031 - 2040). The coordination focus brings the County, Caltrans, Cities of Orland and Willows, the TAC, Grindstone Rancheria of Wintun-Wailaki Indians of California (Grindstone Indian Rancheria), governmental resource agencies, commercial and agricultural interests, and citizens into the planning process (Glenn County 2019).

The RTP establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 and establishes an overall GHG target for the region consistent with both the statewide GHG-reduction targets for 2020 and the post-2020 statewide GHG reduction goals. During development of the 2020 RTP update, existing plans, documents and studies addressing transportation in Glenn County were reviewed to ensure the RTP's consistency with other planning documents. In addition, the RTP is supported by a combination of transportation and land use strategies that help the region achieve state GHG emission reduction goals and federal CAA requirements, preserve open space areas, improve public health and roadway safety, support the vital goods movement industry, and use resources more efficiently. The effectiveness of efforts by the RTP Authority to provide transportation alternatives and to implement policies and strategies consistent with State and national goals of reducing GHG emissions can be measured in terms of reductions in vehicle miles traveled (VMT) or expected growth in VMT. VMT reductions correlate directly with reductions in GHG emissions. The Proposed Project's consistency with the RTP goals is analyzed in detail in Table 3-4.

Table 3-4. Consistency with GCTC's RTP Goals

GCTC Goals	Compliance with Goal
Goal 1: Upgrade and maintain existing road system	*Consistent:* The local and regional transportation system would be improved and maintained to encourage efficiency and productivity. The City of Orland's Public Works Department oversees the improvement and maintenance of all aspects of the public right-of-way on an as-needed basis. Additionally, the Project TIAM recommends several upgrades to the roadways surrounding the Project Site and that the Project developer work closely with the City to incorporate these recommendations into the Project design.
Goal 2: Provide a Safe Transportation System	*Consistent*: All modes of transit in the City of Orland are required to follow safety standards set by corresponding regulatory documents. Pedestrian walkways and bicycle routes must follow safety precautions and standards established by local (e.g., City of Orland, County of Glenn) and regional agencies (e.g., GCTC, Caltrans). Roadways for motorists must follow safety standards established for the local and regional plans. The TIAM recommends improvements to surrounding roadways including the installation of a left-turning lane, which would be consistent with this Goal, and specifically implementation measures under Policy 2.1, which aims to install left-turn lanes where safety and operations benefits justify the improvements.
Goal 3: Align financial resources to meet the highest demonstrated transportation needs.	*Consistent*: All development projects, including the Proposed Project, are subject to traffic impacts fees under the City of Orland Municipal Code Chapter 56 Part I, which will help in offsetting traffic impacts associated with the Proposed Project. Additionally, new roadway developments and improvements to the existing transportation network must be assessed with some level of traffic analysis (e.g., traffic assessments, traffic impact studies) to determine how the developments would impact existing traffic capacities and to determine the needs for improving future traffic capacities.

Table 3-4. Consistency with GCTC's RTP Goals

GCTC Goals	Compliance with Goal
Goal 4: Promote Coordination.	*Consistent*: Improvements to the transportation network in the City of Orland are developed and maintained to meet the needs of local and regional transportation and to ensure efficient mobility. A number of regional and local plans and programs are used to guide development and maintenance of transportation networks, including but not limited to: • Caltrans Traffic Impact Studies Guidelines • Caltrans Highway Capacity Manual • GCTC's RTP • Surrounding City's and County's General Plans Implementation of the Proposed Project requires approval by the City. Prior to approval, the developer and City would coordinate which particular improvements to the surrounding roadways must be made in order to maintain an appropriate current and future level of service.
Goal 5: Efficient and Effective Transportation System.	*Consistent*: See response to RTP Goal 4. Additionally, as a result of proposing a commercial land use, specifically a transportation fueling center, in an area surrounded by residences and in close proximity to I-5, the Project can be identified for its "location efficiency". Location efficiency describes the location of the Project relative to the type of urban landscape its proposed to fit within. In general, compared to the statewide average, a project with location efficiency can realize automotive VMT reductions between 10 and 65 percent (CAPCOA 2021). The Project would locate complementary commercial land uses in close proximity to existing offsite residential uses and I-5, thereby providing commercial and work options to the existing, nearby residents currently living near the site. Additionally, the close proximity to I-5 allows for freight trucks and general motorists to utilize the proposed facility, without having to venture further from I-5 to locate such facilities. The location efficiency of the Project Site would result in synergistic benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related emissions, consistent with Goal 5. Furthermore, the Project region is dominated by residential and agricultural land uses. The increases in land use diversity and mix of uses in the Project area would reduce vehicle trips and VMT by encouraging walking and non-automotive forms of transportation, which would result in corresponding reductions in transportation-related emissions, consistent with this Goal.
Goal 6: Promote Economic Development and Land Use Policies.	*Not Applicable*: This is not a project-specific policy and is therefore not applicable

Table 3-4. Consistency with GCTC's RTP Goals

GCTC Goals	Compliance with Goal
Goal 7: Provide Non-Auto Transportation Modes Consistent with Demand and Available Resources.	*Consistent*: The reduction of energy use, improvement of air quality, and promotion of more environmentally sustainable development are encouraged through the development of alternative transportation methods, green design techniques for buildings, and other energy-reducing techniques. For example, development projects are required to comply with the provisions of the California Building and Energy Efficiency Standards and the Green Building Standards Code). The City also strives to maximize the protection of the environment and improvement of air quality by encouraging and improving the use of the region's public transportation system (e.g., bus, bicycle) for residents, visitors, and workers coming into and out of Orland.
Goal 8: Develop a Comprehensive System of Bikeway Facilities to Serve Glenn County	*Not Applicable*: This is not a project-specific policy and is therefore not applicable
Goal 9: Increase the efficiency of the existing transportation system and Implement Transportation System Management (TSM) techniques where feasible	*Consistent*: See Goals 4 and 5 above.
Goal 10: Reduce the Demand for Single Occupant Vehicle Travel through Transportation Demand Management (TDM) Techniques	*Not Applicable*: This is not a project-specific policy and is therefore not applicable
Goal 11: Improve Livability in the County through Land Use and Transportation Integration and Decisions that Encourage Walking, Transit, and Bicycling.	*Not Applicable*: This is not a project-specific policy and is therefore not applicable

Implementing GCTC's RTP will maintain existing regional GHG emission rates from transportation, helping to achieve statewide emission reduction targets. As shown, the Proposed Project would in no way conflict with the stated goals of the RTP; and therefore, the Proposed Project would not interfere with GCTC's ability to achieve the region's post-2020 mobile source GHG reduction measures outlined in the 2020 RTP, and it can be assumed that regional mobile emissions will be maintained in line with the goals of the RTP. Furthermore, the Proposed Project is not regionally significant per CEQA Guidelines Section 15206 and as such, it would not conflict with the GCTC's RTP goals and policies, since those were established and are applicable on a regional level.

Consistency with CARB's Scoping Plan

The Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations. It does not provide recommendations for lead agencies to develop evidence-based numeric thresholds consistent with the Scoping Plan, the state's long-term GHG goals, and climate change science. Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of the AB 32 Scoping Plan and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 3-5 highlights measures that have been, or will be, developed under the Scoping Plan and presents the Project's consistency with Scoping Plan measures. The Project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law and to the extent that they are applicable to the Project.

Table 3-5. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*Consistent*. The Project's employees and customers would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	*Consistent*. Motor vehicles driven by the Project's employees and customers would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	*Consistent*. The Glenn County RTP establishes to several goals, policies, and implementation measures. See Table 3-3 above for consistency with the regional RTP.
Advanced Clean Transit	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Last-Mile Delivery	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Reduction in VMT	N/A	*Consistent*. The Project would result in a VMT reductions with the implementation of the required City, County, State, and federal policies and actions needed for Project approval. Additionally, as shown in Table 3-3 above, the Project would be considered a "location efficiency" project, thus reducing VMT.
Vehicle Efficiency Measure 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Ship Electrification at Ports (Shore Power)	T-5	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition	T-6	*Not applicable*. The Project would not prevent CARB from implementing this measure.

Table 3-5. Project Consistency with Scoping Plan GHG Emission Reduction Strategies		
Scoping Plan Measure	Measure Number	Proposed Project Consistency
3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction		
Heavy-Duty Vehicle GHG Emission Reduction • Tractor-Trailer GHG Regulation • Heavy-Duty GHG Standards for New Vehicle and Engines (Phase I)	T-7	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Proposed Project	T-8	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Medium and Heavy-Duty GHG Phase 2	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure.
High-Speed Rail	T-9	*Not applicable*. The Project would not prevent CARB from implementing this measure.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*Consistent.* The Project would be constructed in accordance with Cal Green and Title 24 building standards.
Energy Efficiency Measures (Natural Gas)	CR-1	*Consistent.* The Project would be constructed in accordance with Cal Green and Title 24 building standards.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	*Not applicable*. The Project would not prevent CARB from implementing this measure
Combined Heat and Power	E-2	*Not applicable*. The Project would not prevent CARB from implementing this measure
Renewables Portfolio Standard (33% by 2020)	E-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Renewables Portfolio Standard (60% by 2030)	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	*Not applicable*. The Project would not prevent CARB from implementing this measure
Water Sector		
Water Use Efficiency	W-1	*Consistent.* The Project would be constructed in accordance with Cal Green and Title 24 building standards.
Water Recycling	W-2	*Not applicable*. The Project would not prevent CARB from implementing this measure

Table 3-5. Project Consistency with Scoping Plan GHG Emission Reduction Strategies		
Scoping Plan Measure	Measure Number	Proposed Project Consistency
Water System Energy Efficiency	W-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Reuse Urban Runoff	W-4	*Not applicable*. The Project would not prevent CARB from implementing this measure
Renewable Energy Production	W-5	*Not applicable*. The Project would not prevent CARB from implementing this measure
	Green Buildings	
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	*Not applicable*. The Project would not prevent CARB from implementing this measure
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	*Consistent.* The Project would be constructed in accordance with Cal Green and Title 24 building standards.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential, and Commercial Buildings	GB-1	*Consistent.* The Project would be constructed in accordance with Cal Green and Title 24 building standards. Additionally, the state is to increase the use of green building practices. The Proposed Project would implement required green building strategies through existing regulation that requires the Proposed Project to comply with various Cal Green requirements. The Project includes sustainability design features that support the Green Building Strategy.
Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	*Not applicable*. The Project would not prevent CARB from implementing this measure
	Industry Sector	
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	*Not applicable*. The Project would not prevent CARB from implementing this measure
Oil and Gas Extraction GHG Emissions Reduction	I-2	*Not applicable*. The Project would not prevent CARB from implementing this measure
Reduce GHG Emissions by 20% in Oil Refinery Sector	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Refinery Flare Recovery Process Improvements	I-4	*Not applicable*. The Project would not prevent CARB from implementing this measure
Work with the Local Air Districts to Evaluate Amendments to Their Existing Leak Detection and Repair Rules for Industrial Facilities to Include Methane Leaks	I-5	*Not applicable*. The Project would not prevent CARB from implementing this measure
	Recycling and Waste Management Sector	
Landfill Methane Control Measure	RW-1	*Not applicable.* The Project would not prevent CARB from implementing this measure

Table 3-5. Project Consistency with Scoping Plan GHG Emission Reduction Strategies		
Scoping Plan Measure	Measure Number	Proposed Project Consistency
Increasing the Efficiency of Landfill Methane Capture	RW-2	*Not applicable*. The Project would not prevent CARB from implementing this measure
Mandatory Commercial Recycling	RW-3	*Consistent.* The Project would include recycling during both construction and operation consistent with the requirements of the Title 24 Building Standards
Increase Production and Markets for Compost and Other Organics	RW-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Anaerobic/Aerobic Digestion	RW-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Extended Producer Responsibility	RW-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Environmentally Preferable Purchasing	RW-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Forests Sector		
Sustainable Forest Target	F-1	*Not applicable*. The Project would not prevent CARB from implementing this measure
Motor Vehicle Air Condition Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	*Not applicable*. The Project would not prevent CARB from implementing this measure
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	*Not applicable*. The Project would not prevent CARB from implementing this measure
Reduction of Perfluorocarbons (PFCs) in Semiconductor Manufacturing	H-3	*Not applicable*. The Project would not prevent CARB from implementing this measure
Limit High GWP Use in Consumer Products	H-4	*Not applicable*. The Project would not prevent CARB from implementing this measure
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*Not applicable.* The Project would not prevent CARB from implementing this measure
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	*Not applicable*. The Project would not prevent CARB from implementing this measure
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	*Not applicable.* The Project would not prevent CARB from implementing this measure
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	*Not applicable*. The Project would not prevent CARB from implementing this measure
40% Reduction in Methane and Hydrofluorocarbon (HFC) Emissions	N/A	*Not applicable*. The Project would not prevent CARB from implementing this measure
50% Reduction in Black Carbon Emissions	N/A	*Not applicable.* The Project would not prevent CARB from implementing this measure
Agriculture Sector		

Table 3-5. Project Consistency with Scoping Plan GHG Emission Reduction Strategies		
Scoping Plan Measure	Measure Number	Proposed Project Consistency
Methane Capture at Large Dairies	A-1	*Not applicable.* The Project would not prevent CARB from implementing this measure

Based on the analysis in Table 3-5, the Project would be consistent with the applicable strategies and measures in the Scoping Plan.

The Project would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-03-05 and SB 32. EO S-03-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory toward meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

To begin, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80 percent below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in SB 32 and EO S-03-05. This is confirmed in the Second Update, which states (CARB 2017):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the

> environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

As discussed previously, the Project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regard to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the Project would be speculative and cannot be identified at this time. The Project's consistency would assist in meeting the City's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-03-05, CARB has also made clear its legal interpretation is that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40 percent reduction target by 2030 and EO S-03-05's 80 percent reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets. The Project would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 or impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050.

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Attachment A – Daily and Annual CalEEMod Output Files

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

Orland Maverik
Glenn County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market With Gas Pumps	9.08	1000sqft	0.21	9,080.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Start dates and duration estimations provided by construction contractor. Construction of facility and vapor recovery system construction assumed to occur simultaneously; paving and painting phases combined as assumed to occur simultaneously

Off-road Equipment - Applicant engineering estimate

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Applicant engineering esimation.

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list updated to match vapor recovery portion of Construction Questionnaire

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

Grading - Grading volumes estimated by applicant per plans

Vehicle Trips - Traffic Impact Analysis for Mavrick Store (KDA, 2021)

Fleet Mix - Updated to reflect Project characteristics more accurately

Stationary Sources - Emergency Generators and Fire Pumps -

Trips and VMT - Project knowledge

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	100.00	21.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	2.00	21.00
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	1.00	21.00
tblFleetMix	HHD	0.02	0.07
tblFleetMix	LDA	0.51	0.57
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.04	0.03
tblFleetMix	LHD2	0.01	6.3920e-003
tblFleetMix	MCY	0.03	4.5650e-003
tblFleetMix	MDV	0.15	0.11
tblFleetMix	MH	3.4500e-003	7.4800e-004
tblFleetMix	MHD	8.2920e-003	9.3330e-003
tblFleetMix	OBUS	2.5800e-004	1.0840e-003

tblFleetMix	SBUS	9.4800e-004	7.7300e-004
tblFleetMix	UBUS	1.7600e-004	1.5100e-003
tblGrading	AcresOfGrading	21.00	0.13
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	7,000.00
tblGrading	MaterialImported	0.00	7,000.00
tblOffRoadEquipment	HorsePower	158.00	89.00
tblOffRoadEquipment	HorsePower	172.00	225.00
tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	21.00	28.00
tblVehicleTrips	PB_TP	65.00	28.00
tblVehicleTrips	PR_TP	14.00	44.00
tblVehicleTrips	ST_TR	624.20	518.00
tblVehicleTrips	SU_TR	624.20	518.00
tblVehicleTrips	WD_TR	624.20	518.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1338	1.4020	1.3564	2.4500e-003	0.0442	0.0691	0.1133	0.0207	0.0637	0.0844	0.0000	217.7042	217.7042	0.0593	4.3400e-003	220.4806
2023	0.1650	0.5583	0.6933	1.2800e-003	4.3200e-003	0.0272	0.0315	1.1500e-003	0.0253	0.0264	0.0000	111.8703	111.8703	0.0321	1.3000e-004	112.7132
Maximum	**0.1650**	**1.4020**	**1.3564**	**2.4500e-003**	**0.0442**	**0.0691**	**0.1133**	**0.0207**	**0.0637**	**0.0844**	**0.0000**	**217.7042**	**217.7042**	**0.0593**	**4.3400e-003**	**220.4806**

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	0.1338	1.4020	1.3564	2.4500e-003	0.0442	0.0691	0.1133	0.0207	0.0637	0.0844	0.0000	217.7040	217.7040	0.0593	4.3400e-003	220.4803
2023	0.1650	0.5583	0.6933	1.2800e-003	4.3200e-003	0.0272	0.0315	1.1500e-003	0.0253	0.0264	0.0000	111.8701	111.8701	0.0321	1.3000e-004	112.7130
Maximum	**0.1650**	**1.4020**	**1.3564**	**2.4500e-003**	**0.0442**	**0.0691**	**0.1133**	**0.0207**	**0.0637**	**0.0844**	**0.0000**	**217.7040**	**217.7040**	**0.0593**	**4.3400e-003**	**220.4803**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	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	10-25-2021	1-24-2022	0.0579	0.0579
2	1-25-2022	4-24-2022	0.0169	0.0169
3	4-25-2022	7-24-2022	0.0318	0.0318
4	7-25-2022	10-24-2022	0.7498	0.7498
5	10-25-2022	1-24-2023	0.8670	0.8670
6	1-25-2023	4-24-2023	0.5277	0.5277
		Highest	0.8670	0.8670

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0460	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	11.7947	11.7947	1.1700e-003	2.2000e-004	11.8911
Mobile	1.4738	4.2073	11.4635	0.0304	2.4053	0.0356	2.4409	0.6446	0.0336	0.6782	0.0000	2,831.6548	2,831.6548	0.1460	0.2335	2,904.8721
Waste						0.0000	0.0000		0.0000	0.0000	5.5396	0.0000	5.5396	0.3274	0.0000	13.7242
Water						0.0000	0.0000		0.0000	0.0000	0.2134	0.4702	0.6836	0.0220	5.3000e-004	1.3904
Total	**1.5203**	**4.2121**	**11.4675**	**0.0304**	**2.4053**	**0.0360**	**2.4413**	**0.6446**	**0.0340**	**0.6786**	**5.7530**	**2,843.9199**	**2,849.6729**	**0.4966**	**0.2342**	**2,931.8779**

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	0.0460	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Energy	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	11.7947	11.7947	1.1700e-003	2.2000e-004	11.8911
Mobile	1.4738	4.2073	11.4635	0.0304	2.4053	0.0356	2.4409	0.6446	0.0336	0.6782	0.0000	2,831.6548	2,831.6548	0.1460	0.2335	2,904.8721
Waste						0.0000	0.0000		0.0000	0.0000	5.5396	0.0000	5.5396	0.3274	0.0000	13.7242
Water						0.0000	0.0000		0.0000	0.0000	0.2134	0.4702	0.6836	0.0220	5.3000e-004	1.3904
Total	**1.5203**	**4.2121**	**11.4675**	**0.0304**	**2.4053**	**0.0360**	**2.4413**	**0.6446**	**0.0340**	**0.6786**	**5.7530**	**2,843.9199**	**2,849.6729**	**0.4966**	**0.2342**	**2,931.8779**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Vapor Recovery System Construction	Building Construction	1/1/2022	1/31/2022	5	21	
2	Site Preparation	Site Preparation	7/1/2022	7/29/2022	5	21	
3	Grading	Grading	8/1/2022	8/29/2022	5	21	

4	Building Construction	Building Construction	9/1/2022	1/31/2023	5	109	
5	Vapor Recovery System Site Prep	Site Preparation	12/1/2022	12/29/2022	5	21	
6	Paving	Paving	2/1/2023	3/30/2023	5	42	
7	Architectural Coating	Architectural Coating	2/1/2023	3/30/2023	5	42	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.13

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,620; Non-Residential Outdoor: 4,540; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vapor Recovery System Construction	Cranes	1	4.00	231	0.29
Vapor Recovery System Construction	Excavators	1	6.00	89	0.20
Vapor Recovery System Construction	Other Construction Equipment	1	8.00	225	0.40
Vapor Recovery System Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	2	6.00	187	0.41
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Other Construction Equipment	4	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Vapor Recovery System Site Prep	Cranes	0	4.00	231	0.29

Vapor Recovery System Site Prep	Excavators	1	8.00	158	0.38
Vapor Recovery System Site Prep	Forklifts	0	6.00	89	0.20
Vapor Recovery System Site Prep	Graders	0	8.00	187	0.41
Vapor Recovery System Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Vapor Recovery System Site Prep	Trenchers	1	8.00	78	0.50
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	2	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Architectural Coating	Air Compressors	2	6.00	78	0.48
Vapor Recovery System Construction	Trenchers	1	4.00	78	0.50

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
Vapor Recovery System Construction	5	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	875.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Vapor Recovery System Site Prep	3	8.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Vapor Recovery System 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	6.2200e-003	0.0638	0.0557	9.0000e-005		3.4600e-003	3.4600e-003		3.1800e-003	3.1800e-003	0.0000	8.1370	8.1370	2.6300e-003	0.0000	8.2027
Total	**6.2200e-003**	**0.0638**	**0.0557**	**9.0000e-005**		**3.4600e-003**	**3.4600e-003**		**3.1800e-003**	**3.1800e-003**	**0.0000**	**8.1370**	**8.1370**	**2.6300e-003**	**0.0000**	**8.2027**

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	3.0000e-005	6.7000e-004	2.1000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2176	0.2176	0.0000	3.0000e-005	0.2271
Worker	1.1000e-004	8.0000e-005	8.8000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2093	0.2093	1.0000e-005	1.0000e-005	0.2115
Total	**1.4000e-004**	**7.5000e-004**	**1.0900e-003**	**0.0000**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.4269**	**0.4269**	**1.0000e-005**	**4.0000e-005**	**0.4386**

3.2 Vapor Recovery System 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	6.2200e-003	0.0638	0.0557	9.0000e-005		3.4600e-003	3.4600e-003		3.1800e-003	3.1800e-003	0.0000	8.1369	8.1369	2.6300e-003	0.0000	8.2027
Total	**6.2200e-003**	**0.0638**	**0.0557**	**9.0000e-005**		**3.4600e-003**	**3.4600e-003**		**3.1800e-003**	**3.1800e-003**	**0.0000**	**8.1369**	**8.1369**	**2.6300e-003**	**0.0000**	**8.2027**

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	3.0000e-005	6.7000e-004	2.1000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2176	0.2176	0.0000	3.0000e-005	0.2271
Worker	1.1000e-004	8.0000e-005	8.8000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2093	0.2093	1.0000e-005	1.0000e-005	0.2115
Total	**1.4000e-004**	**7.5000e-004**	**1.0900e-003**	**0.0000**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.4269**	**0.4269**	**1.0000e-005**	**4.0000e-005**	**0.4386**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4600e-003	0.0352	0.0470	7.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	5.7389	5.7389	1.8600e-003	0.0000	5.7853
Total	**3.4600e-003**	**0.0352**	**0.0470**	**7.0000e-005**	**2.7000e-004**	**1.8900e-003**	**2.1600e-003**	**3.0000e-005**	**1.7400e-003**	**1.7700e-003**	**0.0000**	**5.7389**	**5.7389**	**1.8600e-003**	**0.0000**	**5.7853**

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	1.4600e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3489	0.3489	1.0000e-005	1.0000e-005	0.3524
Total	**1.9000e-004**	**1.3000e-004**	**1.4600e-003**	**0.0000**	**4.2000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3489**	**0.3489**	**1.0000e-005**	**1.0000e-005**	**0.3524**

3.3 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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4600e-003	0.0352	0.0470	7.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	5.7389	5.7389	1.8600e-003	0.0000	5.7853
Total	**3.4600e-003**	**0.0352**	**0.0470**	**7.0000e-005**	**2.7000e-004**	**1.8900e-003**	**2.1600e-003**	**3.0000e-005**	**1.7400e-003**	**1.7700e-003**	**0.0000**	**5.7389**	**5.7389**	**1.8600e-003**	**0.0000**	**5.7853**

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	1.4600e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3489	0.3489	1.0000e-005	1.0000e-005	0.3524
Total	**1.9000e-004**	**1.3000e-004**	**1.4600e-003**	**0.0000**	**4.2000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3489**	**0.3489**	**1.0000e-005**	**1.0000e-005**	**0.3524**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0325	0.0000	0.0325	0.0175	0.0000	0.0175	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.1858	0.1303	2.9000e-004		7.7800e-003	7.7800e-003		7.2800e-003	7.2800e-003	0.0000	24.9446	24.9446	6.5500e-003	0.0000	25.1084
Total	**0.0177**	**0.1858**	**0.1303**	**2.9000e-004**	**0.0325**	**7.7800e-003**	**0.0403**	**0.0175**	**7.2800e-003**	**0.0248**	**0.0000**	**24.9446**	**24.9446**	**6.5500e-003**	**0.0000**	**25.1084**

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	1.7000e-003	0.0708	0.0138	2.7000e-004	7.4300e-003	7.0000e-004	8.1300e-003	2.0400e-003	6.7000e-004	2.7100e-003	0.0000	25.7594	25.7594	7.0000e-005	4.0500e-003	26.9678
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	5.6000e-004	3.8000e-004	4.3800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2500e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0466	1.0466	4.0000e-005	3.0000e-005	1.0572
Total	**2.2600e-003**	**0.0712**	**0.0182**	**2.8000e-004**	**8.6800e-003**	**7.1000e-004**	**9.3800e-003**	**2.3700e-003**	**6.8000e-004**	**3.0500e-003**	**0.0000**	**26.8061**	**26.8061**	**1.1000e-004**	**4.0800e-003**	**28.0250**

3.4 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					0.0325	0.0000	0.0325	0.0175	0.0000	0.0175	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.1858	0.1303	2.9000e-004		7.7800e-003	7.7800e-003		7.2800e-003	7.2800e-003	0.0000	24.9446	24.9446	6.5500e-003	0.0000	25.1083
Total	**0.0177**	**0.1858**	**0.1303**	**2.9000e-004**	**0.0325**	**7.7800e-003**	**0.0403**	**0.0175**	**7.2800e-003**	**0.0248**	**0.0000**	**24.9446**	**24.9446**	**6.5500e-003**	**0.0000**	**25.1083**

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	1.7000e-003	0.0708	0.0138	2.7000e-004	7.4300e-003	7.0000e-004	8.1300e-003	2.0400e-003	6.7000e-004	2.7100e-003	0.0000	25.7594	25.7594	7.0000e-005	4.0500e-003	26.9678
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	5.6000e-004	3.8000e-004	4.3800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2500e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0466	1.0466	4.0000e-005	3.0000e-005	1.0572
Total	**2.2600e-003**	**0.0712**	**0.0182**	**2.8000e-004**	**8.6800e-003**	**7.1000e-004**	**9.3800e-003**	**2.3700e-003**	**6.8000e-004**	**3.0500e-003**	**0.0000**	**26.8061**	**26.8061**	**1.1000e-004**	**4.0800e-003**	**28.0250**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0953	0.9695	1.0107	1.5700e-003		0.0508	0.0508		0.0468	0.0468	0.0000	138.0109	138.0109	0.0446	0.0000	139.1268
Total	**0.0953**	**0.9695**	**1.0107**	**1.5700e-003**		**0.0508**	**0.0508**		**0.0468**	**0.0468**	**0.0000**	**138.0109**	**138.0109**	**0.0446**	**0.0000**	**139.1268**

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	1.2000e-004	2.7900e-003	8.5000e-004	1.0000e-005	2.9000e-004	3.0000e-005	3.2000e-004	8.0000e-005	3.0000e-005	1.1000e-004	0.0000	0.9014	0.9014	1.0000e-005	1.3000e-004	0.9409
Worker	4.6000e-004	3.2000e-004	3.6300e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8672	0.8672	3.0000e-005	3.0000e-005	0.8760
Total	**5.8000e-004**	**3.1100e-003**	**4.4800e-003**	**2.0000e-005**	**1.3200e-003**	**4.0000e-005**	**1.3600e-003**	**3.5000e-004**	**4.0000e-005**	**3.9000e-004**	**0.0000**	**1.7686**	**1.7686**	**4.0000e-005**	**1.6000e-004**	**1.8169**

3.5 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	0.0953	0.9695	1.0107	1.5700e-003		0.0508	0.0508		0.0468	0.0468	0.0000	138.0108	138.0108	0.0446	0.0000	139.1266
Total	**0.0953**	**0.9695**	**1.0107**	**1.5700e-003**		**0.0508**	**0.0508**		**0.0468**	**0.0468**	**0.0000**	**138.0108**	**138.0108**	**0.0446**	**0.0000**	**139.1266**

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	1.2000e-004	2.7900e-003	8.5000e-004	1.0000e-005	2.9000e-004	3.0000e-005	3.2000e-004	8.0000e-005	3.0000e-005	1.1000e-004	0.0000	0.9014	0.9014	1.0000e-005	1.3000e-004	0.9409
Worker	4.6000e-004	3.2000e-004	3.6300e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8672	0.8672	3.0000e-005	3.0000e-005	0.8760
Total	**5.8000e-004**	**3.1100e-003**	**4.4800e-003**	**2.0000e-005**	**1.3200e-003**	**4.0000e-005**	**1.3600e-003**	**3.5000e-004**	**4.0000e-005**	**3.9000e-004**	**0.0000**	**1.7686**	**1.7686**	**4.0000e-005**	**1.6000e-004**	**1.8169**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0223	0.2219	0.2542	4.0000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	34.9032	34.9032	0.0113	0.0000	35.1854
Total	**0.0223**	**0.2219**	**0.2542**	**4.0000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**34.9032**	**34.9032**	**0.0113**	**0.0000**	**35.1854**

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	2.0000e-005	5.8000e-004	1.9000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2206	0.2206	0.0000	3.0000e-005	0.2301
Worker	1.1000e-004	7.0000e-005	8.4000e-004	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2122	0.2122	1.0000e-005	1.0000e-005	0.2142
Total	**1.3000e-004**	**6.5000e-004**	**1.0300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.4000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.4328**	**0.4328**	**1.0000e-005**	**4.0000e-005**	**0.4444**

3.5 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	0.0223	0.2219	0.2542	4.0000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	34.9032	34.9032	0.0113	0.0000	35.1854
Total	**0.0223**	**0.2219**	**0.2542**	**4.0000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**34.9032**	**34.9032**	**0.0113**	**0.0000**	**35.1854**

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	2.0000e-005	5.8000e-004	1.9000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2206	0.2206	0.0000	3.0000e-005	0.2301
Worker	1.1000e-004	7.0000e-005	8.4000e-004	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2122	0.2122	1.0000e-005	1.0000e-005	0.2142
Total	**1.3000e-004**	**6.5000e-004**	**1.0300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.4000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.4328**	**0.4328**	**1.0000e-005**	**4.0000e-005**	**0.4444**

3.6 Vapor Recovery System Site Prep - 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6800e-003	0.0717	0.0850	1.2000e-004		4.3600e-003	4.3600e-003		4.0100e-003	4.0100e-003	0.0000	10.7466	10.7466	3.4800e-003	0.0000	10.8335
Total	**7.6800e-003**	**0.0717**	**0.0850**	**1.2000e-004**	**0.0000**	**4.3600e-003**	**4.3600e-003**	**0.0000**	**4.0100e-003**	**4.0100e-003**	**0.0000**	**10.7466**	**10.7466**	**3.4800e-003**	**0.0000**	**10.8335**

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	6.7000e-004	2.1000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2176	0.2176	0.0000	3.0000e-005	0.2271
Worker	3.0000e-004	2.0000e-004	2.3400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5582	0.5582	2.0000e-005	2.0000e-005	0.5639
Total	**3.3000e-004**	**8.7000e-004**	**2.5500e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.5000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.7758**	**0.7758**	**2.0000e-005**	**5.0000e-005**	**0.7910**

3.6 Vapor Recovery System Site Prep - 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6800e-003	0.0717	0.0850	1.2000e-004		4.3600e-003	4.3600e-003		4.0100e-003	4.0100e-003	0.0000	10.7466	10.7466	3.4800e-003	0.0000	10.8335
Total	**7.6800e-003**	**0.0717**	**0.0850**	**1.2000e-004**	**0.0000**	**4.3600e-003**	**4.3600e-003**	**0.0000**	**4.0100e-003**	**4.0100e-003**	**0.0000**	**10.7466**	**10.7466**	**3.4800e-003**	**0.0000**	**10.8335**

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	6.7000e-004	2.1000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2176	0.2176	0.0000	3.0000e-005	0.2271
Worker	3.0000e-004	2.0000e-004	2.3400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5582	0.5582	2.0000e-005	2.0000e-005	0.5639
Total	**3.3000e-004**	**8.7000e-004**	**2.5500e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.5000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.7758**	**0.7758**	**2.0000e-005**	**5.0000e-005**	**0.7910**

3.7 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	0.0277	0.2800	0.3492	7.2000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	62.5697	62.5697	0.0201	0.0000	63.0716
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0277**	**0.2800**	**0.3492**	**7.2000e-004**		**0.0128**	**0.0128**		**0.0118**	**0.0118**	**0.0000**	**62.5697**	**62.5697**	**0.0201**	**0.0000**	**63.0716**

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	1.5800e-003	1.0200e-003	0.0123	3.0000e-005	3.8200e-003	2.0000e-005	3.8500e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.1059	3.1059	1.0000e-004	9.0000e-005	3.1357
Total	**1.5800e-003**	**1.0200e-003**	**0.0123**	**3.0000e-005**	**3.8200e-003**	**2.0000e-005**	**3.8500e-003**	**1.0200e-003**	**2.0000e-005**	**1.0400e-003**	**0.0000**	**3.1059**	**3.1059**	**1.0000e-004**	**9.0000e-005**	**3.1357**

3.7 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	0.0277	0.2800	0.3492	7.2000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	62.5696	62.5696	0.0201	0.0000	63.0716
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0277**	**0.2800**	**0.3492**	**7.2000e-004**		**0.0128**	**0.0128**		**0.0118**	**0.0118**	**0.0000**	**62.5696**	**62.5696**	**0.0201**	**0.0000**	**63.0716**

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	1.5800e-003	1.0200e-003	0.0123	3.0000e-005	3.8200e-003	2.0000e-005	3.8500e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.1059	3.1059	1.0000e-004	9.0000e-005	3.1357
Total	**1.5800e-003**	**1.0200e-003**	**0.0123**	**3.0000e-005**	**3.8200e-003**	**2.0000e-005**	**3.8500e-003**	**1.0200e-003**	**2.0000e-005**	**1.0400e-003**	**0.0000**	**3.1059**	**3.1059**	**1.0000e-004**	**9.0000e-005**	**3.1357**

3.8 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	0.1052					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0500e-003	0.0547	0.0761	1.2000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	10.7237	10.7237	6.4000e-004	0.0000	10.7397
Total	**0.1133**	**0.0547**	**0.0761**	**1.2000e-004**		**2.9700e-003**	**2.9700e-003**		**2.9700e-003**	**2.9700e-003**	**0.0000**	**10.7237**	**10.7237**	**6.4000e-004**	**0.0000**	**10.7397**

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	4.0000e-005	5.3000e-004	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1350	0.1350	0.0000	0.0000	0.1363
Total	**7.0000e-005**	**4.0000e-005**	**5.3000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1350**	**0.1350**	**0.0000**	**0.0000**	**0.1363**

3.8 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	0.1052					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0500e-003	0.0547	0.0761	1.2000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	10.7237	10.7237	6.4000e-004	0.0000	10.7397
Total	**0.1133**	**0.0547**	**0.0761**	**1.2000e-004**		**2.9700e-003**	**2.9700e-003**		**2.9700e-003**	**2.9700e-003**	**0.0000**	**10.7237**	**10.7237**	**6.4000e-004**	**0.0000**	**10.7397**

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	4.0000e-005	5.3000e-004	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1350	0.1350	0.0000	0.0000	0.1363
Total	**7.0000e-005**	**4.0000e-005**	**5.3000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1350**	**0.1350**	**0.0000**	**0.0000**	**0.1363**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4738	4.2073	11.4635	0.0304	2.4053	0.0356	2.4409	0.6446	0.0336	0.6782	0.0000	2,831.6548	2,831.6548	0.1460	0.2335	2,904.8721
Unmitigated	1.4738	4.2073	11.4635	0.0304	2.4053	0.0356	2.4409	0.6446	0.0336	0.6782	0.0000	2,831.6548	2,831.6548	0.1460	0.2335	2,904.8721

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	4,703.44	4,703.44	4703.44	6,437,275	6,437,275
Total	4,703.44	4,703.44	4,703.44	6,437,275	6,437,275

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	44	28	28

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.566513	0.031300	0.168363	0.110330	0.025979	0.006392	0.009333	0.073113	0.001084	0.001510	0.004565	0.000773	0.000748

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.6537	6.6537	1.0800e-003	1.3000e-004	6.7195
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.6537	6.6537	1.0800e-003	1.3000e-004	6.7195
NaturalGas Mitigated	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1410	5.1410	1.0000e-004	9.0000e-005	5.1716
NaturalGas Unmitigated	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1410	5.1410	1.0000e-004	9.0000e-005	5.1716

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	96338.8	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1410	5.1410	1.0000e-004	9.0000e-005	5.1716
Total		**5.2000e-004**	**4.7200e-003**	**3.9700e-003**	**3.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**5.1410**	**5.1410**	**1.0000e-004**	**9.0000e-005**	**5.1716**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	96338.8	5.2000e-004	4.7200e-003	3.9700e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1410	5.1410	1.0000e-004	9.0000e-005	5.1716
Total		**5.2000e-004**	**4.7200e-003**	**3.9700e-003**	**3.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**5.1410**	**5.1410**	**1.0000e-004**	**9.0000e-005**	**5.1716**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	71913.6	6.6537	1.0800e-003	1.3000e-004	6.7195
Total		**6.6537**	**1.0800e-003**	**1.3000e-004**	**6.7195**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	71913.6	6.6537	1.0800e-003	1.3000e-004	6.7195
Total		**6.6537**	**1.0800e-003**	**1.3000e-004**	**6.7195**

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	0.0460	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Unmitigated	0.0460	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004

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	0.0105					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0355					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**0.0460**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

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	0.0105					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0355					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	0.0000	1.7000e-004
Total	**0.0460**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0000**	**1.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6836	0.0220	5.3000e-004	1.3904
Unmitigated	0.6836	0.0220	5.3000e-004	1.3904

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.672578 / 0.412226	0.6836	0.0220	5.3000e-004	1.3904
Total		**0.6836**	**0.0220**	**5.3000e-004**	**1.3904**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.672578 / 0.412226	0.6836	0.0220	5.3000e-004	1.3904
Total		**0.6836**	**0.0220**	**5.3000e-004**	**1.3904**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.5396	0.3274	0.0000	13.7242
Unmitigated	5.5396	0.3274	0.0000	13.7242

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	27.29	5.5396	0.3274	0.0000	13.7242
Total		**5.5396**	**0.3274**	**0.0000**	**13.7242**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	27.29	5.5396	0.3274	0.0000	13.7242
Total		**5.5396**	**0.3274**	**0.0000**	**13.7242**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

Orland Maverik

Glenn County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market With Gas Pumps	9.08	1000sqft	0.21	9,080.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Start dates and duration estimations provided by construction contractor. Construction of facility and vapor recovery system construction assumed to occur simultaneously; paving and painting phases combined as assumed to occur simultaneously

Off-road Equipment - Applicant engineering estimate

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Applicant engineering esimation.

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list updated to match vapor recovery portion of Construction Questionnaire

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

Grading - Grading volumes estimated by applicant per plans

Vehicle Trips - Traffic Impact Analysis for Mavrick Store (KDA, 2021)

Fleet Mix - Updated to reflect Project characteristics more accurately

Stationary Sources - Emergency Generators and Fire Pumps -

Trips and VMT - Project knowledge

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	100.00	21.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	2.00	21.00
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	1.00	21.00
tblFleetMix	HHD	0.02	0.07
tblFleetMix	LDA	0.51	0.57
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.04	0.03
tblFleetMix	LHD2	0.01	6.3920e-003
tblFleetMix	MCY	0.03	4.5650e-003
tblFleetMix	MDV	0.15	0.11
tblFleetMix	MH	3.4500e-003	7.4800e-004
tblFleetMix	MHD	8.2920e-003	9.3330e-003
tblFleetMix	OBUS	2.5800e-004	1.0840e-003

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

tblFleetMix	SBUS	9.4800e-004	7.7300e-004
tblFleetMix	UBUS	1.7600e-004	1.5100e-003
tblGrading	AcresOfGrading	21.00	0.13
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	7,000.00
tblGrading	MaterialImported	0.00	7,000.00
tblOffRoadEquipment	HorsePower	158.00	89.00
tblOffRoadEquipment	HorsePower	172.00	225.00
tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	21.00	28.00
tblVehicleTrips	PB_TP	65.00	28.00
tblVehicleTrips	PR_TP	14.00	44.00
tblVehicleTrips	ST_TR	624.20	518.00
tblVehicleTrips	SU_TR	624.20	518.00
tblVehicleTrips	WD_TR	624.20	518.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	2.9728	29.2641	31.7223	0.0539	3.9467	1.5856	4.7545	1.9003	1.4588	2.6579	0.0000	5,442.2898	5,442.2898	1.4990	0.4281	5,587.3419
2023	6.8046	20.2254	23.2129	0.0419	0.1972	1.0366	1.0680	0.0523	0.9537	0.9622	0.0000	4,033.3078	4,033.3078	1.1320	4.7200e-003	4,062.0347
Maximum	**6.8046**	**29.2641**	**31.7223**	**0.0539**	**3.9467**	**1.5856**	**4.7545**	**1.9003**	**1.4588**	**2.6579**	**0.0000**	**5,442.2898**	**5,442.2898**	**1.4990**	**0.4281**	**5,587.3419**

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	lb/day										lb/day					
2022	2.9728	29.2641	31.7223	0.0539	3.9467	1.5856	4.7545	1.9003	1.4588	2.6579	0.0000	5,442.2898	5,442.2898	1.4990	0.4281	5,587.3419
2023	6.8046	20.2254	23.2129	0.0419	0.1972	1.0366	1.0680	0.0523	0.9537	0.9622	0.0000	4,033.3078	4,033.3078	1.1320	4.7200e-003	4,062.0347
Maximum	**6.8046**	**29.2641**	**31.7223**	**0.0539**	**3.9467**	**1.5856**	**4.7545**	**1.9003**	**1.4588**	**2.6579**	**0.0000**	**5,442.2898**	**5,442.2898**	**1.4990**	**0.4281**	**5,587.3419**

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

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

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	lb/day										lb/day					
Area	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Energy	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Mobile	10.2387	21.8266	65.6216	0.1762	13.7044	0.1957	13.9001	3.6618	0.1846	3.8464		18,098.1724	18,098.1724	0.8054	1.3856	18,531.2273
Total	**10.4936**	**21.8525**	**65.6442**	**0.1764**	**13.7044**	**0.1977**	**13.9021**	**3.6618**	**0.1866**	**3.8484**		**18,129.2264**	**18,129.2264**	**0.8060**	**1.3862**	**18,562.4659**

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	lb/day										lb/day					
Area	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Energy	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Mobile	10.2387	21.8266	65.6216	0.1762	13.7044	0.1957	13.9001	3.6618	0.1846	3.8464		18,098.1724	18,098.1724	0.8054	1.3856	18,531.2273
Total	**10.4936**	**21.8525**	**65.6442**	**0.1764**	**13.7044**	**0.1977**	**13.9021**	**3.6618**	**0.1866**	**3.8484**		**18,129.2264**	**18,129.2264**	**0.8060**	**1.3862**	**18,562.4659**

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Vapor Recovery System Construction	Building Construction	1/1/2022	1/31/2022	5	21	
2	Site Preparation	Site Preparation	7/1/2022	7/29/2022	5	21	
3	Grading	Grading	8/1/2022	8/29/2022	5	21	
4	Building Construction	Building Construction	9/1/2022	1/31/2023	5	109	
5	Vapor Recovery System Site Prep	Site Preparation	12/1/2022	12/29/2022	5	21	
6	Paving	Paving	2/1/2023	3/30/2023	5	42	
7	Architectural Coating	Architectural Coating	2/1/2023	3/30/2023	5	42	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.13

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,620; Non-Residential Outdoor: 4,540; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vapor Recovery System Construction	Cranes	1	4.00	231	0.29
Vapor Recovery System Construction	Excavators	1	6.00	89	0.20
Vapor Recovery System Construction	Other Construction Equipment	1	8.00	225	0.40
Vapor Recovery System Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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

Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	2	6.00	187	0.41
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Other Construction Equipment	4	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Vapor Recovery System Site Prep	Cranes	0	4.00	231	0.29
Vapor Recovery System Site Prep	Excavators	1	8.00	158	0.38
Vapor Recovery System Site Prep	Forklifts	0	6.00	89	0.20
Vapor Recovery System Site Prep	Graders	0	8.00	187	0.41
Vapor Recovery System Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Vapor Recovery System Site Prep	Trenchers	1	8.00	78	0.50
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	2	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Architectural Coating	Air Compressors	2	6.00	78	0.48
Vapor Recovery System Construction	Trenchers	1	4.00	78	0.50

Trips and VMT

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

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
Vapor Recovery System Construction	5	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	875.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Vapor Recovery System Site Prep	3	8.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Vapor Recovery System 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	lb/day										lb/day					
Off-Road	0.5924	6.0713	5.3014	8.8200e-003		0.3291	0.3291		0.3028	0.3028		854.2330	854.2330	0.2763		861.1399
Total	**0.5924**	**6.0713**	**5.3014**	**8.8200e-003**		**0.3291**	**0.3291**		**0.3028**	**0.3028**		**854.2330**	**854.2330**	**0.2763**		**861.1399**

3.2 Vapor Recovery System Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0125	6.6100e-003	0.0975	2.4000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		24.0423	24.0423	7.4000e-004	6.4000e-004	24.2521
Total	**0.0153**	**0.0673**	**0.1170**	**4.6000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**46.8759**	**46.8759**	**8.8000e-004**	**3.9800e-003**	**48.0843**

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	lb/day										lb/day					
Off-Road	0.5924	6.0713	5.3014	8.8200e-003		0.3291	0.3291		0.3028	0.3028	0.0000	854.2330	854.2330	0.2763		861.1399
Total	**0.5924**	**6.0713**	**5.3014**	**8.8200e-003**		**0.3291**	**0.3291**		**0.3028**	**0.3028**	**0.0000**	**854.2330**	**854.2330**	**0.2763**		**861.1399**

3.2 Vapor Recovery System Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0125	6.6100e-003	0.0975	2.4000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		24.0423	24.0423	7.4000e-004	6.4000e-004	24.2521
Total	**0.0153**	**0.0673**	**0.1170**	**4.6000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**46.8759**	**46.8759**	**8.8000e-004**	**3.9800e-003**	**48.0843**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0253	0.0000	0.0253	2.7300e-003	0.0000	2.7300e-003			0.0000			0.0000
Off-Road	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658		602.4779	602.4779	0.1949		607.3492
Total	**0.3294**	**3.3513**	**4.4759**	**6.2200e-003**	**0.0253**	**0.1802**	**0.2055**	**2.7300e-003**	**0.1658**	**0.1686**		**602.4779**	**602.4779**	**0.1949**		**607.3492**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0209	0.0110	0.1626	4.0000e-004	0.0411	2.4000e-004	0.0413	0.0109	2.2000e-004	0.0111		40.0705	40.0705	1.2400e-003	1.0700e-003	40.4202
Total	**0.0209**	**0.0110**	**0.1626**	**4.0000e-004**	**0.0411**	**2.4000e-004**	**0.0413**	**0.0109**	**2.2000e-004**	**0.0111**		**40.0705**	**40.0705**	**1.2400e-003**	**1.0700e-003**	**40.4202**

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	lb/day										lb/day					
Fugitive Dust					0.0253	0.0000	0.0253	2.7300e-003	0.0000	2.7300e-003			0.0000			0.0000
Off-Road	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658	0.0000	602.4779	602.4779	0.1949		607.3492
Total	**0.3294**	**3.3513**	**4.4759**	**6.2200e-003**	**0.0253**	**0.1802**	**0.2055**	**2.7300e-003**	**0.1658**	**0.1686**	**0.0000**	**602.4779**	**602.4779**	**0.1949**		**607.3492**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0209	0.0110	0.1626	4.0000e-004	0.0411	2.4000e-004	0.0413	0.0109	2.2000e-004	0.0111		40.0705	40.0705	1.2400e-003	1.0700e-003	40.4202
Total	**0.0209**	**0.0110**	**0.1626**	**4.0000e-004**	**0.0411**	**2.4000e-004**	**0.0413**	**0.0109**	**2.2000e-004**	**0.0111**		**40.0705**	**40.0705**	**1.2400e-003**	**1.0700e-003**	**40.4202**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0930	0.0000	3.0930	1.6672	0.0000	1.6672			0.0000			0.0000
Off-Road	1.6835	17.6992	12.4124	0.0272		0.7406	0.7406		0.6934	0.6934		2,618.7355	2,618.7355	0.6876		2,635.9255
Total	**1.6835**	**17.6992**	**12.4124**	**0.0272**	**3.0930**	**0.7406**	**3.8336**	**1.6672**	**0.6934**	**2.3606**		**2,618.7355**	**2,618.7355**	**0.6876**		**2,635.9255**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1648	6.3758	1.3034	0.0255	0.7304	0.0665	0.7969	0.2004	0.0636	0.2640		2,703.3429	2,703.3429	7.6800e-003	0.4249	2,830.1557
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
Worker	0.0627	0.0330	0.4877	1.1900e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		120.2115	120.2115	3.7200e-003	3.2100e-003	121.2607
Total	**0.2275**	**6.4088**	**1.7912**	**0.0267**	**0.8537**	**0.0672**	**0.9208**	**0.2330**	**0.0643**	**0.2973**		**2,823.5543**	**2,823.5543**	**0.0114**	**0.4281**	**2,951.4164**

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	lb/day										lb/day					
Fugitive Dust					3.0930	0.0000	3.0930	1.6672	0.0000	1.6672			0.0000			0.0000
Off-Road	1.6835	17.6992	12.4124	0.0272		0.7406	0.7406		0.6934	0.6934	0.0000	2,618.7355	2,618.7355	0.6876		2,635.9255
Total	**1.6835**	**17.6992**	**12.4124**	**0.0272**	**3.0930**	**0.7406**	**3.8336**	**1.6672**	**0.6934**	**2.3606**	**0.0000**	**2,618.7355**	**2,618.7355**	**0.6876**		**2,635.9255**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1648	6.3758	1.3034	0.0255	0.7304	0.0665	0.7969	0.2004	0.0636	0.2640		2,703.3429	2,703.3429	7.6800e-003	0.4249	2,830.1557
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
Worker	0.0627	0.0330	0.4877	1.1900e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		120.2115	120.2115	3.7200e-003	3.2100e-003	121.2607
Total	**0.2275**	**6.4088**	**1.7912**	**0.0267**	**0.8537**	**0.0672**	**0.9208**	**0.2330**	**0.0643**	**0.2973**		**2,823.5543**	**2,823.5543**	**0.0114**	**0.4281**	**2,951.4164**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1902	22.2862	23.2338	0.0361		1.1682	1.1682		1.0747	1.0747		3,497.2643	3,497.2643	1.1311		3,525.5415
Total	**2.1902**	**22.2862**	**23.2338**	**0.0361**		**1.1682**	**1.1682**		**1.0747**	**1.0747**		**3,497.2643**	**3,497.2643**	**1.1311**		**3,525.5415**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0125	6.6100e-003	0.0975	2.4000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		24.0423	24.0423	7.4000e-004	6.4000e-004	24.2521
Total	**0.0153**	**0.0673**	**0.1170**	**4.6000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**46.8759**	**46.8759**	**8.8000e-004**	**3.9800e-003**	**48.0843**

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	lb/day										lb/day					
Off-Road	2.1902	22.2862	23.2338	0.0361		1.1682	1.1682		1.0747	1.0747	0.0000	3,497.2643	3,497.2643	1.1311		3,525.5415
Total	**2.1902**	**22.2862**	**23.2338**	**0.0361**		**1.1682**	**1.1682**		**1.0747**	**1.0747**	**0.0000**	**3,497.2643**	**3,497.2643**	**1.1311**		**3,525.5415**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0125	6.6100e-003	0.0975	2.4000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		24.0423	24.0423	7.4000e-004	6.4000e-004	24.2521
Total	**0.0153**	**0.0673**	**0.1170**	**4.6000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**46.8759**	**46.8759**	**8.8000e-004**	**3.9800e-003**	**48.0843**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0260	20.1697	23.1074	0.0361		1.0361	1.0361		0.9532	0.9532		3,497.6555	3,497.6555	1.1312		3,525.9358
Total	**2.0260**	**20.1697**	**23.1074**	**0.0361**		**1.0361**	**1.0361**		**0.9532**	**0.9532**		**3,497.6555**	**3,497.6555**	**1.1312**		**3,525.9358**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	1.6800e-003	0.0499	0.0166	2.1000e-004	6.7800e-003	3.5000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		22.0849	22.0849	9.0000e-005	3.2100e-003	23.0424
Worker	0.0115	5.7800e-003	0.0888	2.3000e-004	0.0246	1.3000e-004	0.0248	6.5400e-003	1.2000e-004	6.6600e-003		23.2582	23.2582	6.6000e-004	5.9000e-004	23.4503
Total	**0.0132**	**0.0556**	**0.1054**	**4.4000e-004**	**0.0314**	**4.8000e-004**	**0.0319**	**8.4900e-003**	**4.6000e-004**	**8.9500e-003**		**45.3431**	**45.3431**	**7.5000e-004**	**3.8000e-003**	**46.4928**

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	lb/day										lb/day					
Off-Road	2.0260	20.1697	23.1074	0.0361		1.0361	1.0361		0.9532	0.9532	0.0000	3,497.6555	3,497.6555	1.1312		3,525.9358
Total	**2.0260**	**20.1697**	**23.1074**	**0.0361**		**1.0361**	**1.0361**		**0.9532**	**0.9532**	**0.0000**	**3,497.6555**	**3,497.6555**	**1.1312**		**3,525.9358**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	1.6800e-003	0.0499	0.0166	2.1000e-004	6.7800e-003	3.5000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		22.0849	22.0849	9.0000e-005	3.2100e-003	23.0424
Worker	0.0115	5.7800e-003	0.0888	2.3000e-004	0.0246	1.3000e-004	0.0248	6.5400e-003	1.2000e-004	6.6600e-003		23.2582	23.2582	6.6000e-004	5.9000e-004	23.4503
Total	**0.0132**	**0.0556**	**0.1054**	**4.4000e-004**	**0.0314**	**4.8000e-004**	**0.0319**	**8.4900e-003**	**4.6000e-004**	**8.9500e-003**		**45.3431**	**45.3431**	**7.5000e-004**	**3.8000e-003**	**46.4928**

3.6 Vapor Recovery System Site Prep - 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823		1,128.2037	1,128.2037	0.3649		1,137.3258
Total	**0.7310**	**6.8323**	**8.0921**	**0.0117**	**0.0000**	**0.4155**	**0.4155**	**0.0000**	**0.3823**	**0.3823**		**1,128.2037**	**1,128.2037**	**0.3649**		**1,137.3258**

3.6 Vapor Recovery System Site Prep - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0334	0.0176	0.2601	6.3000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		64.1128	64.1128	1.9900e-003	1.7100e-003	64.6724
Total	**0.0362**	**0.0783**	**0.2795**	**8.5000e-004**	**0.0725**	**1.0800e-003**	**0.0736**	**0.0194**	**1.0200e-003**	**0.0204**		**86.9464**	**86.9464**	**2.1300e-003**	**5.0500e-003**	**88.5045**

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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823	0.0000	1,128.2037	1,128.2037	0.3649		1,137.3258
Total	**0.7310**	**6.8323**	**8.0921**	**0.0117**	**0.0000**	**0.4155**	**0.4155**	**0.0000**	**0.3823**	**0.3823**	**0.0000**	**1,128.2037**	**1,128.2037**	**0.3649**		**1,137.3258**

3.6 Vapor Recovery System Site Prep - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.8000e-003	0.0607	0.0194	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8336	22.8336	1.4000e-004	3.3400e-003	23.8322
Worker	0.0334	0.0176	0.2601	6.3000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		64.1128	64.1128	1.9900e-003	1.7100e-003	64.6724
Total	**0.0362**	**0.0783**	**0.2795**	**8.5000e-004**	**0.0725**	**1.0800e-003**	**0.0736**	**0.0194**	**1.0200e-003**	**0.0204**		**86.9464**	**86.9464**	**2.1300e-003**	**5.0500e-003**	**88.5045**

3.7 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	lb/day										lb/day					
Off-Road	1.3188	13.3324	16.6306	0.0341		0.6091	0.6091		0.5612	0.5612		3,284.3465	3,284.3465	1.0539		3,310.6941
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3188**	**13.3324**	**16.6306**	**0.0341**		**0.6091**	**0.6091**		**0.5612**	**0.5612**		**3,284.3465**	**3,284.3465**	**1.0539**		**3,310.6941**

3.7 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0885	0.0443	0.6811	1.7600e-003	0.1889	1.0200e-003	0.1900	0.0501	9.4000e-004	0.0511		178.3125	178.3125	5.0900e-003	4.5200e-003	179.7859
Total	**0.0885**	**0.0443**	**0.6811**	**1.7600e-003**	**0.1889**	**1.0200e-003**	**0.1900**	**0.0501**	**9.4000e-004**	**0.0511**		**178.3125**	**178.3125**	**5.0900e-003**	**4.5200e-003**	**179.7859**

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	lb/day										lb/day					
Off-Road	1.3188	13.3324	16.6306	0.0341		0.6091	0.6091		0.5612	0.5612	0.0000	3,284.3465	3,284.3465	1.0539		3,310.6941
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3188**	**13.3324**	**16.6306**	**0.0341**		**0.6091**	**0.6091**		**0.5612**	**0.5612**	**0.0000**	**3,284.3465**	**3,284.3465**	**1.0539**		**3,310.6941**

3.7 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0885	0.0443	0.6811	1.7600e-003	0.1889	1.0200e-003	0.1900	0.0501	9.4000e-004	0.0511		178.3125	178.3125	5.0900e-003	4.5200e-003	179.7859
Total	**0.0885**	**0.0443**	**0.6811**	**1.7600e-003**	**0.1889**	**1.0200e-003**	**0.1900**	**0.0501**	**9.4000e-004**	**0.0511**		**178.3125**	**178.3125**	**5.0900e-003**	**4.5200e-003**	**179.7859**

3.8 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	lb/day										lb/day					
Archit. Coating	5.0102					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380
Total	**5.3935**	**2.6060**	**3.6222**	**5.9400e-003**		**0.1416**	**0.1416**		**0.1416**	**0.1416**		**562.8961**	**562.8961**	**0.0337**		**563.7380**

3.8 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	3.8500e-003	1.9300e-003	0.0296	8.0000e-005	8.2100e-003	4.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.7527	7.7527	2.2000e-004	2.0000e-004	7.8168
Total	**3.8500e-003**	**1.9300e-003**	**0.0296**	**8.0000e-005**	**8.2100e-003**	**4.0000e-005**	**8.2600e-003**	**2.1800e-003**	**4.0000e-005**	**2.2200e-003**		**7.7527**	**7.7527**	**2.2000e-004**	**2.0000e-004**	**7.8168**

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	lb/day										lb/day					
Archit. Coating	5.0102					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380
Total	**5.3935**	**2.6060**	**3.6222**	**5.9400e-003**		**0.1416**	**0.1416**		**0.1416**	**0.1416**	**0.0000**	**562.8961**	**562.8961**	**0.0337**		**563.7380**

3.8 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	3.8500e-003	1.9300e-003	0.0296	8.0000e-005	8.2100e-003	4.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.7527	7.7527	2.2000e-004	2.0000e-004	7.8168
Total	**3.8500e-003**	**1.9300e-003**	**0.0296**	**8.0000e-005**	**8.2100e-003**	**4.0000e-005**	**8.2600e-003**	**2.1800e-003**	**4.0000e-005**	**2.2200e-003**		**7.7527**	**7.7527**	**2.2000e-004**	**2.0000e-004**	**7.8168**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.2387	21.8266	65.6216	0.1762	13.7044	0.1957	13.9001	3.6618	0.1846	3.8464		18,098.1724	18,098.1724	0.8054	1.3856	18,531.2273
Unmitigated	10.2387	21.8266	65.6216	0.1762	13.7044	0.1957	13.9001	3.6618	0.1846	3.8464		18,098.1724	18,098.1724	0.8054	1.3856	18,531.2273

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	4,703.44	4,703.44	4703.44	6,437,275	6,437,275
Total	4,703.44	4,703.44	4,703.44	6,437,275	6,437,275

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	44	28	28

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.566513	0.031300	0.168363	0.110330	0.025979	0.006392	0.009333	0.073113	0.001084	0.001510	0.004565	0.000773	0.000748

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
NaturalGas Unmitigated	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365

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	lb/day										lb/day					
Convenience Market With Gas Pumps	263.942	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Total		**2.8500e-003**	**0.0259**	**0.0217**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**		**31.0520**	**31.0520**	**6.0000e-004**	**5.7000e-004**	**31.2365**

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	lb/day										lb/day					
Convenience Market With Gas Pumps	0.263942	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Total		**2.8500e-003**	**0.0259**	**0.0217**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**		**31.0520**	**31.0520**	**6.0000e-004**	**5.7000e-004**	**31.2365**

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	lb/day										lb/day					
Mitigated	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Unmitigated	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003

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	lb/day										lb/day					
Architectural Coating	0.0577					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Total	**0.2521**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9900e-003**	**1.9900e-003**	**1.0000e-005**		**2.1200e-003**

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	lb/day										lb/day					
Architectural Coating	0.0577					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Total	**0.2521**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9900e-003**	**1.9900e-003**	**1.0000e-005**		**2.1200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Orland Maverik

Glenn County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market With Gas Pumps	9.08	1000sqft	0.21	9,080.00	0

1.2 Other Project Characteristics

Urbanization Urban | **Wind Speed (m/s)** 2.2 | **Precipitation Freq (Days)** 61

Climate Zone 3 | **Operational Year** 2023

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98 | **CH4 Intensity (lb/MWhr)** 0.033 | **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Start dates and duration estimations provided by construction contractor. Construction of facility and vapor recovery system construction assumed to occur simultaneously; paving and painting phases combined as assumed to occur simultaneously

Off-road Equipment - Applicant engineering estimate

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Applicant engineering esimation.

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list

Off-road Equipment - Vendor project knowledge

Off-road Equipment - Equipment list updated to match vapor recovery portion of Construction Questionnaire

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

Grading - Grading volumes estimated by applicant per plans

Vehicle Trips - Traffic Impact Analysis for Mavrick Store (KDA, 2021)

Fleet Mix - Updated to reflect Project characteristics more accurately

Stationary Sources - Emergency Generators and Fire Pumps -

Trips and VMT - Project knowledge

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	100.00	21.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	2.00	21.00
tblConstructionPhase	NumDays	5.00	42.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	1.00	21.00
tblFleetMix	HHD	0.02	0.07
tblFleetMix	LDA	0.51	0.57
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.04	0.03
tblFleetMix	LHD2	0.01	6.3920e-003
tblFleetMix	MCY	0.03	4.5650e-003
tblFleetMix	MDV	0.15	0.11
tblFleetMix	MH	3.4500e-003	7.4800e-004
tblFleetMix	MHD	8.2920e-003	9.3330e-003
tblFleetMix	OBUS	2.5800e-004	1.0840e-003

tblFleetMix	SBUS	9.4800e-004	7.7300e-004
tblFleetMix	UBUS	1.7600e-004	1.5100e-003
tblGrading	AcresOfGrading	21.00	0.13
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	7,000.00
tblGrading	MaterialImported	0.00	7,000.00
tblOffRoadEquipment	HorsePower	158.00	89.00
tblOffRoadEquipment	HorsePower	172.00	225.00
tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	21.00	28.00
tblVehicleTrips	PB_TP	65.00	28.00
tblVehicleTrips	PR_TP	14.00	44.00
tblVehicleTrips	ST_TR	624.20	518.00
tblVehicleTrips	SU_TR	624.20	518.00
tblVehicleTrips	WD_TR	624.20	518.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	2.9668	29.2798	31.6726	0.0538	3.9467	1.5856	4.7546	1.9003	1.4588	2.6581	0.0000	5,430.8493	5,430.8493	1.4993	0.4290	5,576.1595
2023	6.7930	20.2310	23.2012	0.0417	0.1972	1.0366	1.0680	0.0523	0.9537	0.9622	0.0000	4,012.2148	4,012.2148	1.1320	5.4300e-003	4,041.1719
Maximum	**6.7930**	**29.2798**	**31.6726**	**0.0538**	**3.9467**	**1.5856**	**4.7546**	**1.9003**	**1.4588**	**2.6581**	**0.0000**	**5,430.8493**	**5,430.8493**	**1.4993**	**0.4290**	**5,576.1595**

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	lb/day										lb/day					
2022	2.9668	29.2798	31.6726	0.0538	3.9467	1.5856	4.7546	1.9003	1.4588	2.6581	0.0000	5,430.8493	5,430.8493	1.4993	0.4290	5,576.1595
2023	6.7930	20.2310	23.2012	0.0417	0.1972	1.0366	1.0680	0.0523	0.9537	0.9622	0.0000	4,012.2148	4,012.2148	1.1320	5.4300e-003	4,041.1719
Maximum	**6.7930**	**29.2798**	**31.6726**	**0.0538**	**3.9467**	**1.5856**	**4.7546**	**1.9003**	**1.4588**	**2.6581**	**0.0000**	**5,430.8493**	**5,430.8493**	**1.4993**	**0.4290**	**5,576.1595**

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

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

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	lb/day										lb/day					
Area	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Energy	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Mobile	7.5081	24.3160	67.8956	0.1643	13.7044	0.1965	13.9009	3.6618	0.1853	3.8472		16,891.8695	16,891.8695	0.9879	1.4591	17,351.3813
Total	**7.7630**	**24.3419**	**67.9183**	**0.1644**	**13.7044**	**0.1985**	**13.9029**	**3.6618**	**0.1873**	**3.8491**		**16,922.9235**	**16,922.9235**	**0.9885**	**1.4597**	**17,382.6199**

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	lb/day										lb/day					
Area	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Energy	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Mobile	7.5081	24.3160	67.8956	0.1643	13.7044	0.1965	13.9009	3.6618	0.1853	3.8472		16,891.8695	16,891.8695	0.9879	1.4591	17,351.3813
Total	**7.7630**	**24.3419**	**67.9183**	**0.1644**	**13.7044**	**0.1985**	**13.9029**	**3.6618**	**0.1873**	**3.8491**		**16,922.9235**	**16,922.9235**	**0.9885**	**1.4597**	**17,382.6199**

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Vapor Recovery System Construction	Building Construction	1/1/2022	1/31/2022	5	21	
2	Site Preparation	Site Preparation	7/1/2022	7/29/2022	5	21	
3	Grading	Grading	8/1/2022	8/29/2022	5	21	
4	Building Construction	Building Construction	9/1/2022	1/31/2023	5	109	
5	Vapor Recovery System Site Prep	Site Preparation	12/1/2022	12/29/2022	5	21	
6	Paving	Paving	2/1/2023	3/30/2023	5	42	
7	Architectural Coating	Architectural Coating	2/1/2023	3/30/2023	5	42	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.13

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,620; Non-Residential Outdoor: 4,540; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vapor Recovery System Construction	Cranes	1	4.00	231	0.29
Vapor Recovery System Construction	Excavators	1	6.00	89	0.20
Vapor Recovery System Construction	Other Construction Equipment	1	8.00	225	0.40
Vapor Recovery System Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	2	6.00	187	0.41
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Other Construction Equipment	4	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Vapor Recovery System Site Prep	Cranes	0	4.00	231	0.29
Vapor Recovery System Site Prep	Excavators	1	8.00	158	0.38
Vapor Recovery System Site Prep	Forklifts	0	6.00	89	0.20
Vapor Recovery System Site Prep	Graders	0	8.00	187	0.41
Vapor Recovery System Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Vapor Recovery System Site Prep	Trenchers	1	8.00	78	0.50
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	2	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Architectural Coating	Air Compressors	2	6.00	78	0.48
Vapor Recovery System Construction	Trenchers	1	4.00	78	0.50

Trips and VMT

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

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
Vapor Recovery System Construction	5	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	875.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Vapor Recovery System Site Prep	3	8.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Vapor Recovery System 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	lb/day										lb/day					
Off-Road	0.5924	6.0713	5.3014	8.8200e-003		0.3291	0.3291		0.3028	0.3028		854.2330	854.2330	0.2763		861.1399
Total	**0.5924**	**6.0713**	**5.3014**	**8.8200e-003**		**0.3291**	**0.3291**		**0.3028**	**0.3028**		**854.2330**	**854.2330**	**0.2763**		**861.1399**

3.2 Vapor Recovery System Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0109	8.1600e-003	0.0837	2.1000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		21.3086	21.3086	8.4000e-004	7.4000e-004	21.5499
Total	**0.0137**	**0.0739**	**0.1037**	**4.3000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**44.1636**	**44.1636**	**9.8000e-004**	**4.0900e-003**	**45.4064**

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	lb/day										lb/day					
Off-Road	0.5924	6.0713	5.3014	8.8200e-003		0.3291	0.3291		0.3028	0.3028	0.0000	854.2330	854.2330	0.2763		861.1399
Total	**0.5924**	**6.0713**	**5.3014**	**8.8200e-003**		**0.3291**	**0.3291**		**0.3028**	**0.3028**	**0.0000**	**854.2330**	**854.2330**	**0.2763**		**861.1399**

3.2 Vapor Recovery System Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0109	8.1600e-003	0.0837	2.1000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		21.3086	21.3086	8.4000e-004	7.4000e-004	21.5499
Total	**0.0137**	**0.0739**	**0.1037**	**4.3000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**44.1636**	**44.1636**	**9.8000e-004**	**4.0900e-003**	**45.4064**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0253	0.0000	0.0253	2.7300e-003	0.0000	2.7300e-003			0.0000			0.0000
Off-Road	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658		602.4779	602.4779	0.1949		607.3492
Total	**0.3294**	**3.3513**	**4.4759**	**6.2200e-003**	**0.0253**	**0.1802**	**0.2055**	**2.7300e-003**	**0.1658**	**0.1686**		**602.4779**	**602.4779**	**0.1949**		**607.3492**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0182	0.0136	0.1395	3.5000e-004	0.0411	2.4000e-004	0.0413	0.0109	2.2000e-004	0.0111		35.5143	35.5143	1.4000e-003	1.2300e-003	35.9165
Total	**0.0182**	**0.0136**	**0.1395**	**3.5000e-004**	**0.0411**	**2.4000e-004**	**0.0413**	**0.0109**	**2.2000e-004**	**0.0111**		**35.5143**	**35.5143**	**1.4000e-003**	**1.2300e-003**	**35.9165**

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	lb/day										lb/day					
Fugitive Dust					0.0253	0.0000	0.0253	2.7300e-003	0.0000	2.7300e-003			0.0000			0.0000
Off-Road	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658	0.0000	602.4779	602.4779	0.1949		607.3492
Total	**0.3294**	**3.3513**	**4.4759**	**6.2200e-003**	**0.0253**	**0.1802**	**0.2055**	**2.7300e-003**	**0.1658**	**0.1686**	**0.0000**	**602.4779**	**602.4779**	**0.1949**		**607.3492**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0182	0.0136	0.1395	3.5000e-004	0.0411	2.4000e-004	0.0413	0.0109	2.2000e-004	0.0111		35.5143	35.5143	1.4000e-003	1.2300e-003	35.9165
Total	**0.0182**	**0.0136**	**0.1395**	**3.5000e-004**	**0.0411**	**2.4000e-004**	**0.0413**	**0.0109**	**2.2000e-004**	**0.0111**		**35.5143**	**35.5143**	**1.4000e-003**	**1.2300e-003**	**35.9165**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0930	0.0000	3.0930	1.6672	0.0000	1.6672			0.0000			0.0000
Off-Road	1.6835	17.6992	12.4124	0.0272		0.7406	0.7406		0.6934	0.6934		2,618.7355	2,618.7355	0.6876		2,635.9255
Total	**1.6835**	**17.6992**	**12.4124**	**0.0272**	**3.0930**	**0.7406**	**3.8336**	**1.6672**	**0.6934**	**2.3606**		**2,618.7355**	**2,618.7355**	**0.6876**		**2,635.9255**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1582	6.9102	1.3340	0.0256	0.7304	0.0666	0.7970	0.2004	0.0637	0.2641		2,705.5708	2,705.5708	7.3700e-003	0.4253	2,832.4845
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
Worker	0.0547	0.0408	0.4184	1.0500e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		106.5430	106.5430	4.2000e-003	3.7000e-003	107.7495
Total	**0.2129**	**6.9511**	**1.7523**	**0.0266**	**0.8537**	**0.0673**	**0.9210**	**0.2330**	**0.0644**	**0.2974**		**2,812.1138**	**2,812.1138**	**0.0116**	**0.4290**	**2,940.2340**

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	lb/day										lb/day					
Fugitive Dust					3.0930	0.0000	3.0930	1.6672	0.0000	1.6672			0.0000			0.0000
Off-Road	1.6835	17.6992	12.4124	0.0272		0.7406	0.7406		0.6934	0.6934	0.0000	2,618.7355	2,618.7355	0.6876		2,635.9255
Total	**1.6835**	**17.6992**	**12.4124**	**0.0272**	**3.0930**	**0.7406**	**3.8336**	**1.6672**	**0.6934**	**2.3606**	**0.0000**	**2,618.7355**	**2,618.7355**	**0.6876**		**2,635.9255**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1582	6.9102	1.3340	0.0256	0.7304	0.0666	0.7970	0.2004	0.0637	0.2641		2,705.5708	2,705.5708	7.3700e-003	0.4253	2,832.4845
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
Worker	0.0547	0.0408	0.4184	1.0500e-003	0.1232	7.1000e-004	0.1239	0.0327	6.5000e-004	0.0333		106.5430	106.5430	4.2000e-003	3.7000e-003	107.7495
Total	**0.2129**	**6.9511**	**1.7523**	**0.0266**	**0.8537**	**0.0673**	**0.9210**	**0.2330**	**0.0644**	**0.2974**		**2,812.1138**	**2,812.1138**	**0.0116**	**0.4290**	**2,940.2340**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1902	22.2862	23.2338	0.0361		1.1682	1.1682		1.0747	1.0747		3,497.2643	3,497.2643	1.1311		3,525.5415
Total	**2.1902**	**22.2862**	**23.2338**	**0.0361**		**1.1682**	**1.1682**		**1.0747**	**1.0747**		**3,497.2643**	**3,497.2643**	**1.1311**		**3,525.5415**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0109	8.1600e-003	0.0837	2.1000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		21.3086	21.3086	8.4000e-004	7.4000e-004	21.5499
Total	**0.0137**	**0.0739**	**0.1037**	**4.3000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**44.1636**	**44.1636**	**9.8000e-004**	**4.0900e-003**	**45.4064**

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	lb/day										lb/day					
Off-Road	2.1902	22.2862	23.2338	0.0361		1.1682	1.1682		1.0747	1.0747	0.0000	3,497.2643	3,497.2643	1.1311		3,525.5415
Total	**2.1902**	**22.2862**	**23.2338**	**0.0361**		**1.1682**	**1.1682**		**1.0747**	**1.0747**	**0.0000**	**3,497.2643**	**3,497.2643**	**1.1311**		**3,525.5415**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0109	8.1600e-003	0.0837	2.1000e-004	0.0246	1.4000e-004	0.0248	6.5400e-003	1.3000e-004	6.6700e-003		21.3086	21.3086	8.4000e-004	7.4000e-004	21.5499
Total	**0.0137**	**0.0739**	**0.1037**	**4.3000e-004**	**0.0314**	**8.4000e-004**	**0.0323**	**8.4900e-003**	**8.0000e-004**	**9.2900e-003**		**44.1636**	**44.1636**	**9.8000e-004**	**4.0900e-003**	**45.4064**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0260	20.1697	23.1074	0.0361		1.0361	1.0361		0.9532	0.9532		3,497.6555	3,497.6555	1.1312		3,525.9358
Total	**2.0260**	**20.1697**	**23.1074**	**0.0361**		**1.0361**	**1.0361**		**0.9532**	**0.9532**		**3,497.6555**	**3,497.6555**	**1.1312**		**3,525.9358**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	1.6100e-003	0.0541	0.0172	2.1000e-004	6.7800e-003	3.5000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		22.1284	22.1284	8.0000e-005	3.2200e-003	23.0896
Worker	0.0101	7.1400e-003	0.0766	2.0000e-004	0.0246	1.3000e-004	0.0248	6.5400e-003	1.2000e-004	6.6600e-003		20.6215	20.6215	7.5000e-004	6.8000e-004	20.8425
Total	**0.0117**	**0.0612**	**0.0938**	**4.1000e-004**	**0.0314**	**4.8000e-004**	**0.0319**	**8.4900e-003**	**4.6000e-004**	**8.9500e-003**		**42.7499**	**42.7499**	**8.3000e-004**	**3.9000e-003**	**43.9320**

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	lb/day										lb/day					
Off-Road	2.0260	20.1697	23.1074	0.0361		1.0361	1.0361		0.9532	0.9532	0.0000	3,497.6555	3,497.6555	1.1312		3,525.9358
Total	**2.0260**	**20.1697**	**23.1074**	**0.0361**		**1.0361**	**1.0361**		**0.9532**	**0.9532**	**0.0000**	**3,497.6555**	**3,497.6555**	**1.1312**		**3,525.9358**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	1.6100e-003	0.0541	0.0172	2.1000e-004	6.7800e-003	3.5000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		22.1284	22.1284	8.0000e-005	3.2200e-003	23.0896
Worker	0.0101	7.1400e-003	0.0766	2.0000e-004	0.0246	1.3000e-004	0.0248	6.5400e-003	1.2000e-004	6.6600e-003		20.6215	20.6215	7.5000e-004	6.8000e-004	20.8425
Total	**0.0117**	**0.0612**	**0.0938**	**4.1000e-004**	**0.0314**	**4.8000e-004**	**0.0319**	**8.4900e-003**	**4.6000e-004**	**8.9500e-003**		**42.7499**	**42.7499**	**8.3000e-004**	**3.9000e-003**	**43.9320**

3.6 Vapor Recovery System Site Prep - 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823		1,128.2037	1,128.2037	0.3649		1,137.3258
Total	**0.7310**	**6.8323**	**8.0921**	**0.0117**	**0.0000**	**0.4155**	**0.4155**	**0.0000**	**0.3823**	**0.3823**		**1,128.2037**	**1,128.2037**	**0.3649**		**1,137.3258**

3.6 Vapor Recovery System Site Prep - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0292	0.0218	0.2231	5.6000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		56.8229	56.8229	2.2400e-003	1.9700e-003	57.4664
Total	**0.0319**	**0.0875**	**0.2431**	**7.8000e-004**	**0.0725**	**1.0800e-003**	**0.0736**	**0.0194**	**1.0200e-003**	**0.0204**		**79.6780**	**79.6780**	**2.3800e-003**	**5.3200e-003**	**81.3229**

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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823	0.0000	1,128.2037	1,128.2037	0.3649		1,137.3258
Total	**0.7310**	**6.8323**	**8.0921**	**0.0117**	**0.0000**	**0.4155**	**0.4155**	**0.0000**	**0.3823**	**0.3823**	**0.0000**	**1,128.2037**	**1,128.2037**	**0.3649**		**1,137.3258**

3.6 Vapor Recovery System Site Prep - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
Vendor	2.7400e-003	0.0657	0.0200	2.2000e-004	6.7800e-003	7.0000e-004	7.4800e-003	1.9500e-003	6.7000e-004	2.6200e-003		22.8550	22.8550	1.4000e-004	3.3500e-003	23.8565
Worker	0.0292	0.0218	0.2231	5.6000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		56.8229	56.8229	2.2400e-003	1.9700e-003	57.4664
Total	**0.0319**	**0.0875**	**0.2431**	**7.8000e-004**	**0.0725**	**1.0800e-003**	**0.0736**	**0.0194**	**1.0200e-003**	**0.0204**		**79.6780**	**79.6780**	**2.3800e-003**	**5.3200e-003**	**81.3229**

3.7 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	lb/day										lb/day					
Off-Road	1.3188	13.3324	16.6306	0.0341		0.6091	0.6091		0.5612	0.5612		3,284.3465	3,284.3465	1.0539		3,310.6941
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3188**	**13.3324**	**16.6306**	**0.0341**		**0.6091**	**0.6091**		**0.5612**	**0.5612**		**3,284.3465**	**3,284.3465**	**1.0539**		**3,310.6941**

3.7 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0774	0.0547	0.5874	1.5600e-003	0.1889	1.0200e-003	0.1900	0.0501	9.4000e-004	0.0511		158.0984	158.0984	5.7900e-003	5.2000e-003	159.7924
Total	**0.0774**	**0.0547**	**0.5874**	**1.5600e-003**	**0.1889**	**1.0200e-003**	**0.1900**	**0.0501**	**9.4000e-004**	**0.0511**		**158.0984**	**158.0984**	**5.7900e-003**	**5.2000e-003**	**159.7924**

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	lb/day										lb/day					
Off-Road	1.3188	13.3324	16.6306	0.0341		0.6091	0.6091		0.5612	0.5612	0.0000	3,284.3465	3,284.3465	1.0539		3,310.6941
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3188**	**13.3324**	**16.6306**	**0.0341**		**0.6091**	**0.6091**		**0.5612**	**0.5612**	**0.0000**	**3,284.3465**	**3,284.3465**	**1.0539**		**3,310.6941**

3.7 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0774	0.0547	0.5874	1.5600e-003	0.1889	1.0200e-003	0.1900	0.0501	9.4000e-004	0.0511		158.0984	158.0984	5.7900e-003	5.2000e-003	159.7924
Total	**0.0774**	**0.0547**	**0.5874**	**1.5600e-003**	**0.1889**	**1.0200e-003**	**0.1900**	**0.0501**	**9.4000e-004**	**0.0511**		**158.0984**	**158.0984**	**5.7900e-003**	**5.2000e-003**	**159.7924**

3.8 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	lb/day										lb/day					
Archit. Coating	5.0102					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380
Total	**5.3935**	**2.6060**	**3.6222**	**5.9400e-003**		**0.1416**	**0.1416**		**0.1416**	**0.1416**		**562.8961**	**562.8961**	**0.0337**		**563.7380**

3.8 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	3.3600e-003	2.3800e-003	0.0255	7.0000e-005	8.2100e-003	4.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.8738	6.8738	2.5000e-004	2.3000e-004	6.9475
Total	**3.3600e-003**	**2.3800e-003**	**0.0255**	**7.0000e-005**	**8.2100e-003**	**4.0000e-005**	**8.2600e-003**	**2.1800e-003**	**4.0000e-005**	**2.2200e-003**		**6.8738**	**6.8738**	**2.5000e-004**	**2.3000e-004**	**6.9475**

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	lb/day										lb/day					
Archit. Coating	5.0102					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380
Total	**5.3935**	**2.6060**	**3.6222**	**5.9400e-003**		**0.1416**	**0.1416**		**0.1416**	**0.1416**	**0.0000**	**562.8961**	**562.8961**	**0.0337**		**563.7380**

3.8 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	3.3600e-003	2.3800e-003	0.0255	7.0000e-005	8.2100e-003	4.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.8738	6.8738	2.5000e-004	2.3000e-004	6.9475
Total	**3.3600e-003**	**2.3800e-003**	**0.0255**	**7.0000e-005**	**8.2100e-003**	**4.0000e-005**	**8.2600e-003**	**2.1800e-003**	**4.0000e-005**	**2.2200e-003**		**6.8738**	**6.8738**	**2.5000e-004**	**2.3000e-004**	**6.9475**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5081	24.3160	67.8956	0.1643	13.7044	0.1965	13.9009	3.6618	0.1853	3.8472		16,891.8695	16,891.8695	0.9879	1.4591	17,351.3813
Unmitigated	7.5081	24.3160	67.8956	0.1643	13.7044	0.1965	13.9009	3.6618	0.1853	3.8472		16,891.8695	16,891.8695	0.9879	1.4591	17,351.3813

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	4,703.44	4,703.44	4703.44	6,437,275	6,437,275
Total	4,703.44	4,703.44	4,703.44	6,437,275	6,437,275

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	44	28	28

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.566513	0.031300	0.168363	0.110330	0.025979	0.006392	0.009333	0.073113	0.001084	0.001510	0.004565	0.000773	0.000748

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
NaturalGas Unmitigated	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365

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	lb/day										lb/day					
Convenience Market With Gas Pumps	263.942	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Total		**2.8500e-003**	**0.0259**	**0.0217**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**		**31.0520**	**31.0520**	**6.0000e-004**	**5.7000e-004**	**31.2365**

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	lb/day										lb/day					
Convenience Market With Gas Pumps	0.263942	2.8500e-003	0.0259	0.0217	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003		31.0520	31.0520	6.0000e-004	5.7000e-004	31.2365
Total		**2.8500e-003**	**0.0259**	**0.0217**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**		**31.0520**	**31.0520**	**6.0000e-004**	**5.7000e-004**	**31.2365**

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	lb/day										lb/day					
Mitigated	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Unmitigated	0.2521	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003

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	lb/day										lb/day					
Architectural Coating	0.0577					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Total	**0.2521**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9900e-003**	**1.9900e-003**	**1.0000e-005**		**2.1200e-003**

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	lb/day										lb/day					
Architectural Coating	0.0577					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1943					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9900e-003	1.9900e-003	1.0000e-005		2.1200e-003
Total	**0.2521**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9900e-003**	**1.9900e-003**	**1.0000e-005**		**2.1200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

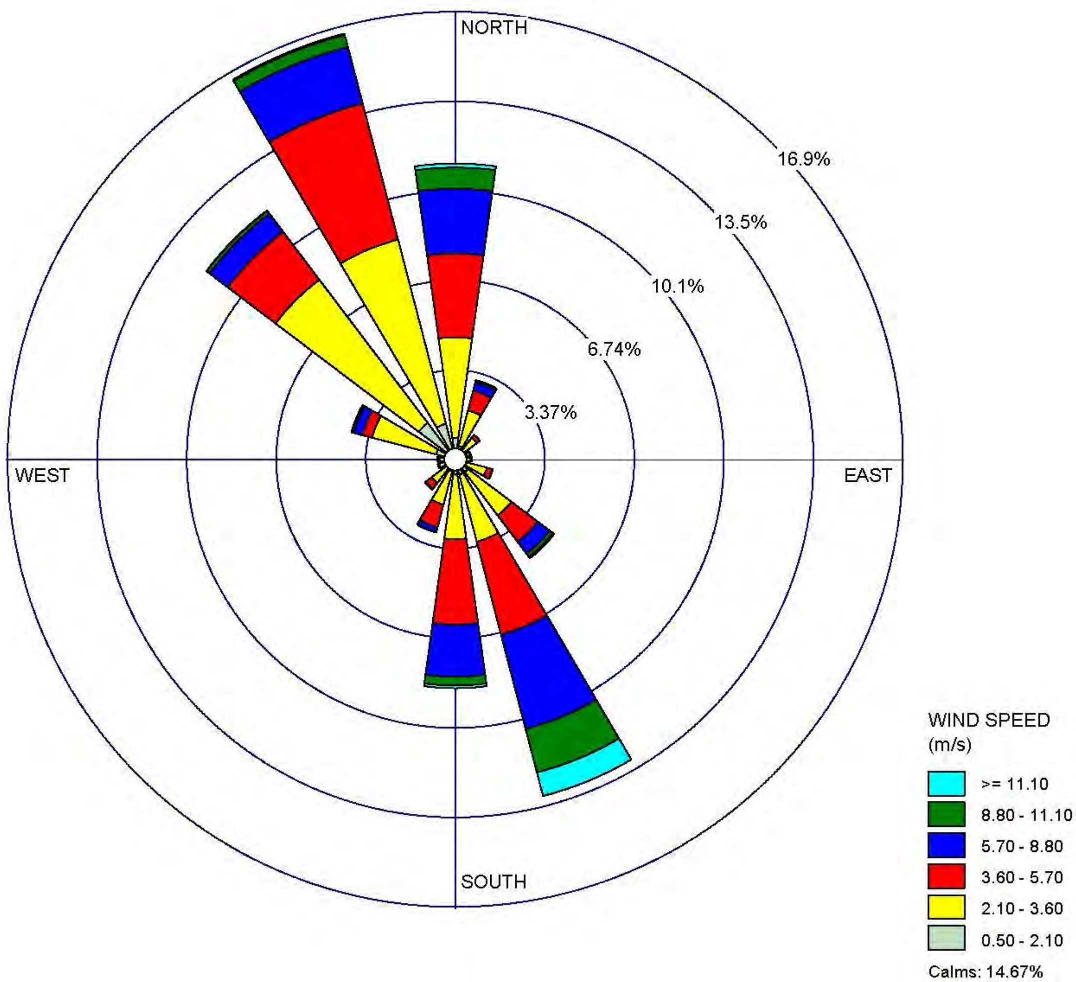
Attachment B – Health Risk Assessment Figures

WIND ROSE PLOT:

Station #24216 - RED BLUFF/MUNICIPAL ARPT, CA

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2009 - 00:00** **End Date: 1/2/2014 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **14.67%**	TOTAL COUNT: **42542 hrs.**	
	AVG. WIND SPEED: **3.60 m/s**	DATE: **11/15/2021**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Figure 2-7. Photos of Coffer Dam Alternatives

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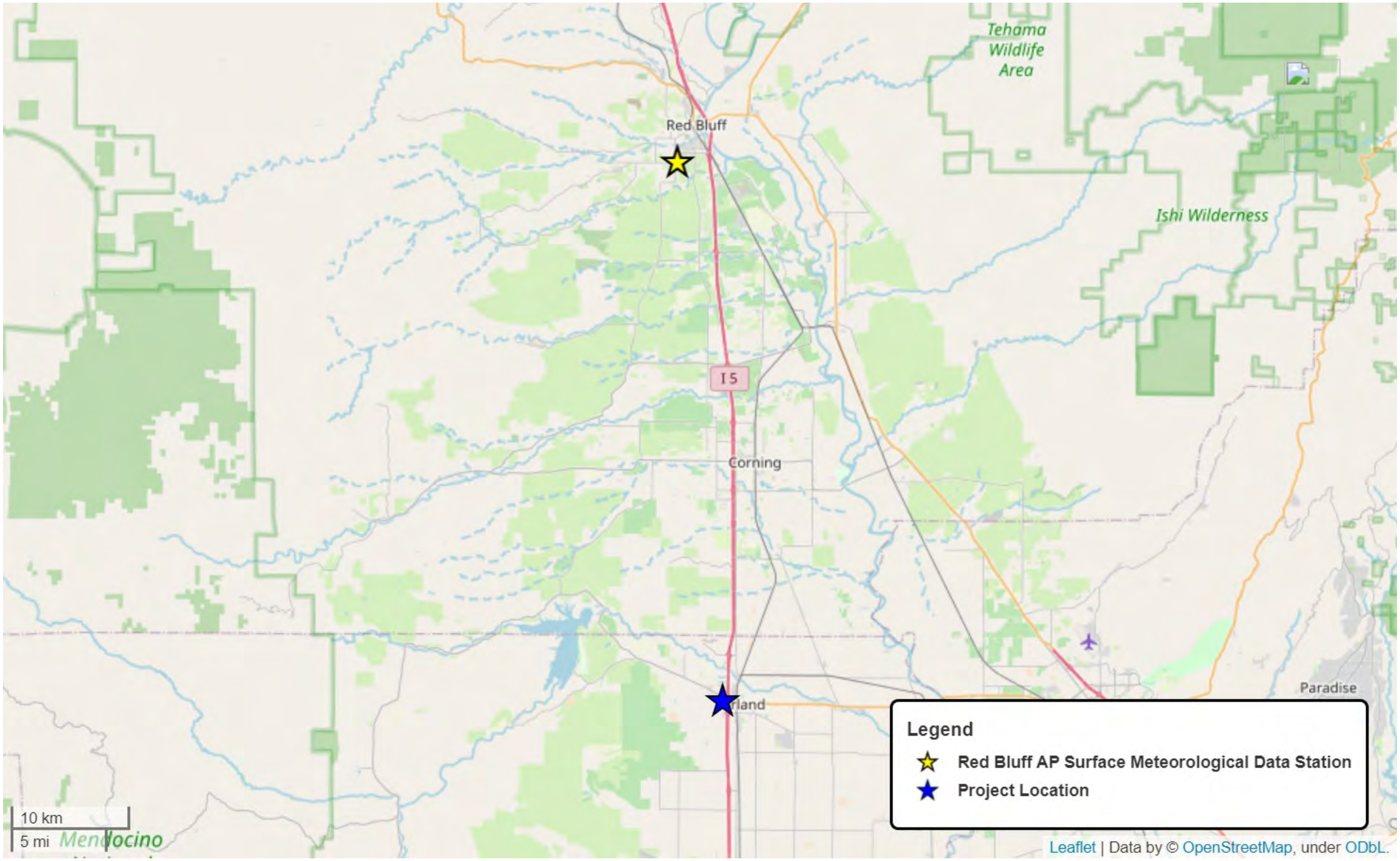
2020-104-Hemphill Diversion Structure Project



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure B-2 Met Station Location

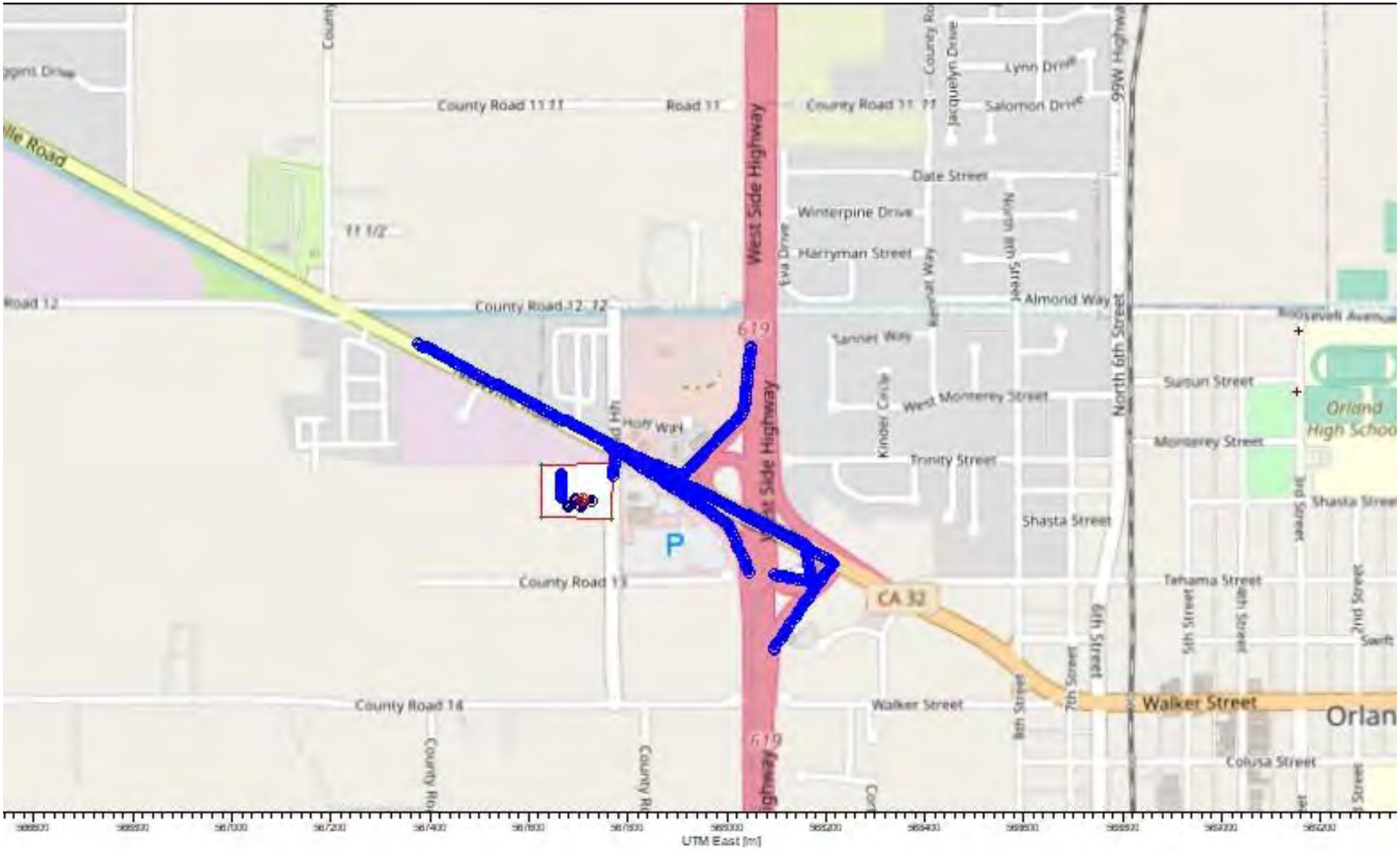


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Figure B-3 Source Locations

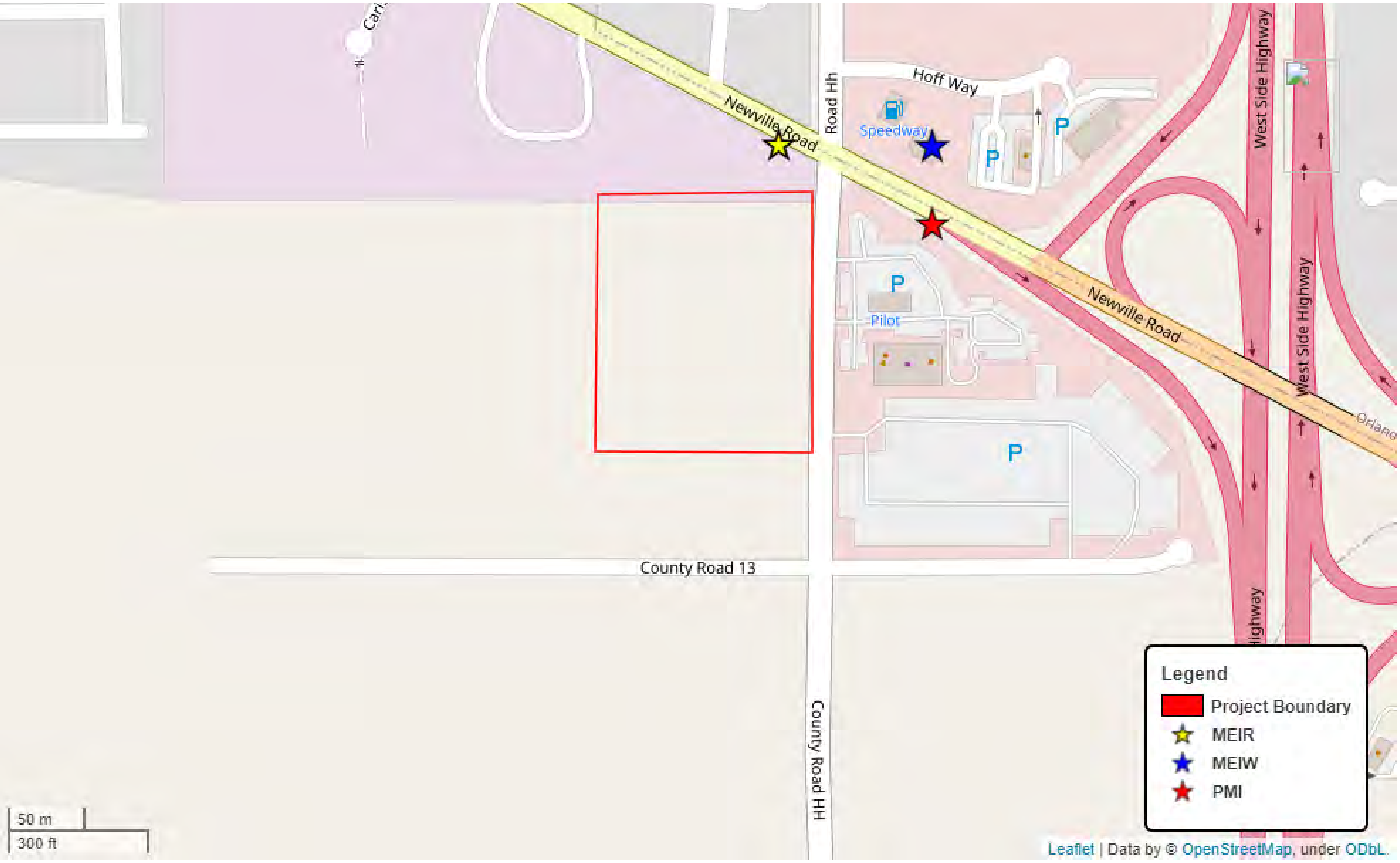

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Figure B-4 Max Cancer Risk Locations

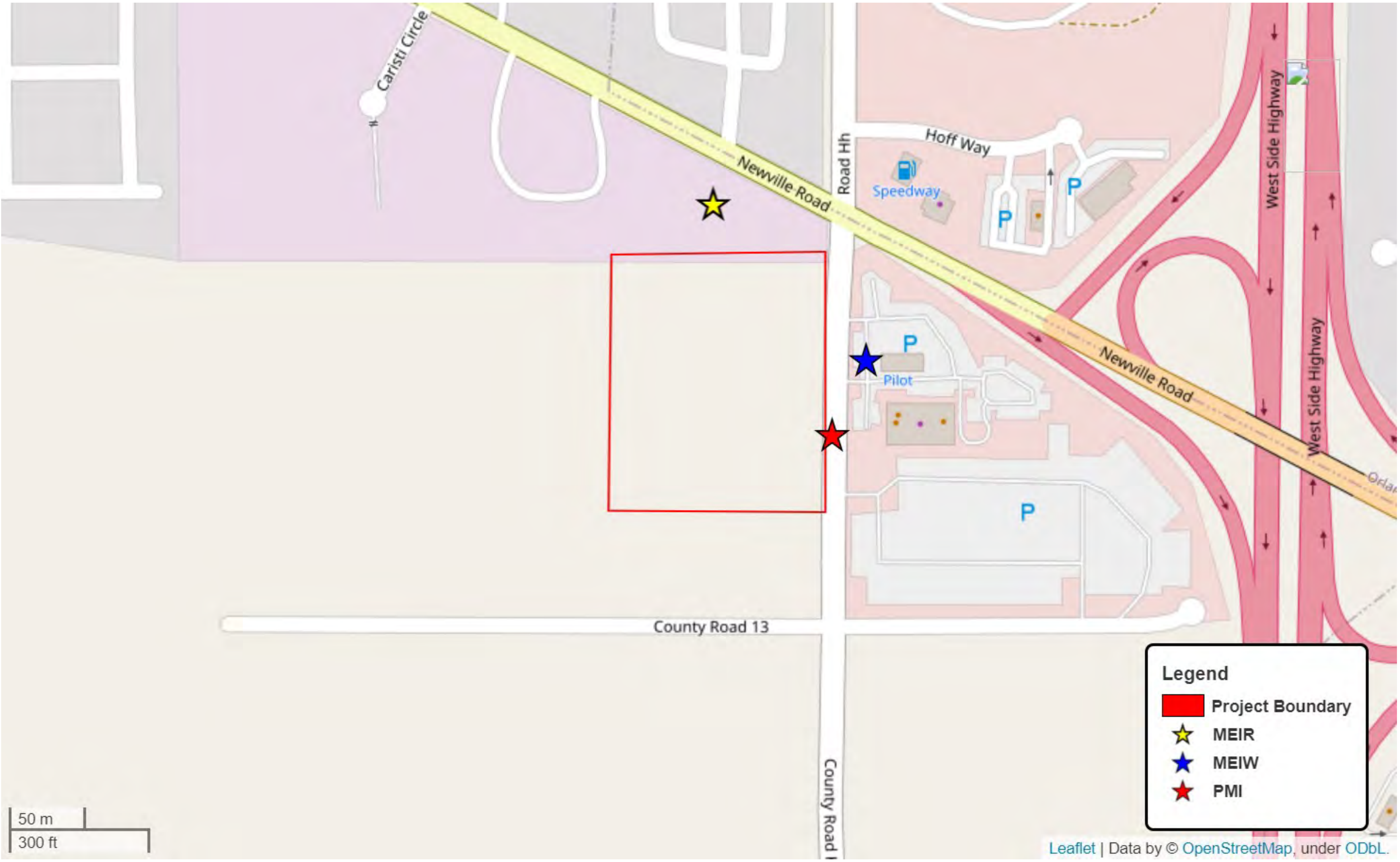

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Figure B-5 Max Non-cancer Hazard Locations

Attachment C – Health Risk Assessment Calculations

Table C-1. Modeled Roadway Dimensions

Roadway Link Description	AERMOD ID	Length (meters)	Width (m)	Area (m^2)
Newville Road to I-5 SB	SLINE1	0.24	7.4	2,839
Newville Road to I-5 NB	SLINE2	0.37	7.4	4,461
I-5 NB to Newville Road	SLINE3	0.45	7.4	5,395
I-5 SB to Newville Road	SLINE4	0.29	7.4	3,504
Newville Road to N Maverik Access	SLINE5	0.27	7.4	3,223
Newville Road to Maverik Access	SLINE6	0.04	7.4	446
Onsite Idle	SLINE7	0.03	7.4	349

(1) All roadways modeled as two lanes with standard 3.7 meter width per lane.

(2) Site to Montague captures eastbound and westbound traffic

Table C-2. Total Trip Information

Trip Type	Trips
Average Daily Refueler[1]	3.3
Average Daily Customer[2]	470
Max Hourly Refueler	2
Max Hourly Customer[3]	41.7

(1) 6 million estimate gallons fuel (2 million diesel) a year * 2 / 5,000 gallon avg per truck / 365 days per year

(2) Average daily customer trips are 4,702 per traffic modeling in TIAM report and only count diesel vehicles = 4,702 * 10% diesel trucks

(3) 417 * 10% trucks peak hourly trips estimated in TIAM.

Table C-3. Modeled Roadway Trip Information

Roadway Link	Trip Information					
	Fueling Trucks			Customer Vehicles[2]		
	Percentage Total Trips	Peak Hourly	Average Daily	Percentage Total	Peak Hourly	Average Daily
Newville Road to I-5 SB	50%	1.0	1.7	45.0%	18.8	211.6
Newville Road to I-5 NB	50%	1.0	1.7	45.0%	18.8	211.6
I-5 NB to Newville Road	50%	1.0	1.7	45.0%	18.8	211.6
I-5 SB to Newville Road	50%	1.0	1.7	45.0%	18.8	211.6
Newville Road to N Maverik Access	0%	-	-	10.0%	4.2	47.0
Newville Road to Maverik Access	100%	2.0	3.3	100.0%	41.7	470.2
Onsite Idle	100%	2.0	3.3	100.0%	41.7	470.2

(1) All refueler traffic assumed to originate from I-5

Table C-4. Vehicle EMFAC2017 Emission Rates

Vehicle Type	DPM Emission Rates[1] (g/mi)				
	Idle[2]	5 mph	25 mph	45 mph	Composite[4]
HHDT	0.051	0.021	0.010	0.017	0.022
MHD	0.025	0.030	0.011	0.007	0.011
LHDT2	0.028	0.081	0.030	0.020	0.026
Station Customer Composite[3]	0.046	0.025	0.011	0.016	0.021

(1) DPM Emission Rates conservativly represented using EMFAC2017 PM10 Exhaust emission factors for 2022.

(2) Idle emission rates in grams per minute.

(3) Customer diesel vehicle emission composite estimated at 81% HHDT, 3% LHDT2, and 16% MDV pre CalEEMod.

(4) Composite factor is 90% @ 45 mph + 5% @ 25 mph + 5% @ 5 mph + .1 minute idle per mile

Table C-5. Modeled Roadway Emission Rates

Roadway Link	DPM Emissions[1,2]					
	Fueling Trucks		Customer Vehicles		Total for HARP2	
	Peak Hourly (lbs/hr)	Annual (lbs/yr)	Peak Hourly (lbs/hr)	Annual (lbs/yr)	Peak Hourly (lbs/hr)	Annual (lbs/yr)
Newville Road to I-5 SB	0.000012	0.01	0.0002	0.84	0.0002	0.85
Newville Road to I-5 NB	0.000018	0.01	0.0003	1.32	0.0003	1.33
I-5 NB to Newville Road	0.000022	0.01	0.0004	1.60	0.0004	1.61
I-5 SB to Newville Road	0.000014	0.01	0.0003	1.04	0.0003	1.05
Newville Road to N Maverik Access	-	-	0.0001	0.21	0.0001	0.21
Newville Road to Maverik Access	0.000004	0.00	0.0001	0.29	0.0001	0.30
Onsite Idle	0.000003	0.00	0.0001	0.23	0.0001	0.23

(1) Peak Hourly Emissions = DPM Emission Rate (g/mi) * Peak Hourly Trips * Link Length (mi) / 453.6 (g/lb)

(2) Annual Emissions = DPM Emission Rate (g/mi) * Daily Trips * Link Length (mi) * 365 (days/yr) / 453.6 (g/lb)

Table C-6. Fueling Information

Fuel Tank[1]	Annual (gallons/yr)
Annual Gasoline Throughput	4,000,000
Peak Hourly Storage Filling[1]	12,000
Peak Hourly Pump Throughput[2]	3,360

(1) Peak hourly filling conservativly estimated as 12,000 gallons per hour as maximum truckload.

(2) Peak hourly throughput = 14 pumps * 20 gallons per fill * 12 fills an hour.

Notes: Evaporative emissions from diesel are considered negligible.

Table C-7. Fueling Emission Factors

	TOG Emissions Factors (lb/kgal)		
Emission Source	Uncontrolled Emission Factor (UEF)	Pre-EVR	EVR
Loading	7.70	0.38	0.15
Breathing	0.76	0.09	0.02
Fueling (Non-ORVR)	8.40	2.40	0.42
Fueling (ORVR)	0.42	0.12	0.021
Spillage	0.61	0.42	0.24
Hose Permeation (2017)	0.009	0.009	0.009

(1) Assumes 88% of vehicles have ORVR in 2021 per CARB Revised Phase II Doc (2013)

Notes: All emission factors from CARB's revised Emission factors for Gasoline Marketing Operations (2013)

TOG: total organic gases; ORVR: onboard refueling vapor recovery; EVR: enhanced vapor recovery

Table C-8. Gasoline Speciation

Chemical	Pollutant ID	Weight Percentage
Benzene	71432	0.457%
Ethyl Benzene	100414	0.107%
n-Hexane	110543	1.820%
Naphthalene	91203	0.000445%
Propylene	115071	0.003594%
Toluene	108883	1.110%
Xylenes	1330207	0.4090%

Source: 2021 Draft Gas Station Technical Guidance (CARB)

Table C-9. Peak Hourly and Annual Emissions by Activity

Activity	Emissions ROG	
	Peak Hourly[1] (lbs/hr)	Annual[2] (lbs/yr)
Loading	1.80	600.00
Breathing	0.29	96.00
Fueling[3]	0.23	275.52
Splillage	0.81	960.00
Hose Permeation (2017)	0.03	36.00
Total	3.16	1,967.52

(1) Peak Hourly Emissions = Peak Hourly Throughput (gal/hr) * TOG EF (lbs/1,000 gal) / 1,000 gal

(2) Annual Emissions = Annual Throughput (gal/yr) * TOG EF (lbs/1,000 gal) / 1,000 gal

Table C-10. Peak Hourly TAC Emissions by Activity

Source	Benzene	Ethyl Benzene	n-Hexane	Naphthalene	Propylene	Toluene	Xylenes
Point Sources							
Loading	0.0082	0.0019	0.0328	0.000008	0.000065	0.0200	0.0074
Breathing	0.0013	0.0003	0.0052	0.000001	0.000010	0.0032	0.0012
Volume Sources							
Fueling[3]	0.0011	0.0002	0.0042	0.000001	0.000008	0.0026	0.0009
Splillage	0.0037	0.0009	0.0147	0.000004	0.000029	0.0090	0.0033
Hose Permeation (2017)	0.0001	0.0000	0.0006	0.000000	0.000001	0.0003	0.0001
Total Point	**0.010**	**0.002**	**0.038**	**0.000009**	**0.000**	**0.023**	**0.009**
Total Volume	**0.005**	**0.001**	**0.019**	**0.000005**	**0.000**	**0.012**	**0.004**
Total Volume / 4	**0.0012**	**0.0003**	**0.005**	**0.000001**	**0.000**	**0.003**	**0.001**

Table C-11. Annual TAC Emissions by Activity

Source	Benzene	Ethyl Benzene	n-Hexane	Naphthalene	Propylene	Toluene	Xylenes
Point Sources							
Loading	2.7420	0.6420	10.9200	0.002670	0.021564	6.6600	2.4540
Breathing	0.4387	0.1027	1.7472	0.000427	0.003450	1.0656	0.3926
Volume Sources							
Fueling3	1.2591	0.2948	5.0145	0.001226	0.009902	3.0583	1.1269
Splillage	4.3872	1.0272	17.4720	0.004272	0.034502	10.6560	3.9264
Hose Permeation (2017)	0.1645	0.0385	0.6552	0.000160	0.001294	0.3996	0.1472
Total Point	**0.439**	**0.103**	**1.747**	**0.000427**	**0.003**	**1.066**	**0.393**
Total Volume	**4.5517**	**1.0657**	**18.127**	**0.004432**	**0.036**	**11.056**	**4.074**
Total Volume / 4	**1.1379**	**0.2664**	**4.532**	**0.001108**	**0.009**	**2.764**	**1.018**

```
↑ *** AERMOD - VERSION  19191 ***   *** C:\Users\agne\Desktop\Lakes AERMOD
Outputs\orland_mav\orland_mav.isc ***        11/08/21
 *** AERMET - VERSION  14134 ***   ***
                        ***        12:08:15

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL

                                            ***     MODEL SETUP OPTIONS SUMMARY
  ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses RURAL Dispersion Only.

 **Model Uses Regulatory DEFAULT Options:
         1. Stack-tip Downwash.
         2. Model Accounts for ELEVated Terrain Effects.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.

 **Other Options Specified:
         CCVR_Sub - Meteorological data includes CCVR substitutions
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  UNITIZED

 **Model Calculates  1 Short Term Average(s) of:   1-HR
     and Calculates ANNUAL Averages

 **This Run Includes:    380 Source(s);      13 Source Group(s); and     631
Receptor(s)

                with:      1 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    379 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
```

```
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing
Hours
                                                                 b for Both Calm
and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     3.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      4.1 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   orland_mav.err

 **File for Summary of Results:   orland_mav.sum

↑ *** AERMOD - VERSION  19191 ***   *** C:\Users\agne\Desktop\Lakes AERMOD
Outputs\orland_mav\orland_mav.isc ***        11/08/21
 *** AERMET - VERSION  14134 ***   ***
                        ***        12:08:15

                                   PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL

                                            *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
```

(1=YES; 0=NO)

```
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV RURAL

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: 725910\725910.SFC
Met Version: 14134
Profile file: 725910\725910.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 24216 Upper air station no.: 3198
Name: RED_BLUFF/MUNICIPAL_ARPT Name: UNKNOWN

```
                  Year:   2009                                 Year:   2009

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN
ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
 09 01 01   1 01   -7.5  0.131 -9.000 -9.000 -999.  113.     26.9  0.05   0.89
1.00    2.36  181.   10.0  278.1    2.0
 09 01 01   1 02   -2.6  0.058 -9.000 -9.000 -999.   35.      6.6  0.02   0.89
1.00    1.76  168.   10.0  278.1    2.0
 09 01 01   1 03 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.09   0.89
1.00    0.00    0.   10.0  277.5    2.0
 09 01 01   1 04   -3.2  0.066 -9.000 -9.000 -999.   40.      7.9  0.05   0.89
1.00    1.76  193.   10.0  277.5    2.0
 09 01 01   1 05   -6.0  0.106 -9.000 -9.000 -999.   82.     17.6  0.02   0.89
1.00    2.36  163.   10.0  277.5    2.0
 09 01 01   1 06   -3.2  0.066 -9.000 -9.000 -999.   40.      7.9  0.05   0.89
1.00    1.76  192.   10.0  277.5    2.0
 09 01 01   1 07 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.09   0.89
1.00    0.00    0.   10.0  277.5    2.0
 09 01 01   1 08 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.09   0.89
1.00    0.00    0.   10.0  277.5    2.0
 09 01 01   1 09 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.09   0.89
0.45    0.00    0.   10.0  277.5    2.0
 09 01 01   1 10    3.4 -9.000 -9.000 -9.000   21. -999. -99999.0  0.09   0.89
0.31    0.00    0.   10.0  278.1    2.0
 09 01 01   1 11   11.6  0.191  0.308  0.010   91.  201.    -54.5  0.05   0.89
0.25    2.36  184.   10.0  278.8    2.0
 09 01 01   1 12   16.3 -9.000 -9.000 -9.000  139. -999. -99999.0  0.09   0.89
0.23    0.00    0.   10.0  278.8    2.0
 09 01 01   1 13   17.1  0.195  0.439  0.009  177.  207.    -39.1  0.05   0.89
0.23    2.36  183.   10.0  279.2    2.0
 09 01 01   1 14   14.1  0.152  0.422  0.011  191.  143.    -22.5  0.05   0.89
0.24    1.76  199.   10.0  279.2    2.0
 09 01 01   1 15    7.3  0.130  0.340  0.011  194.  112.    -27.0  0.02   0.89
0.28    1.76  152.   10.0  279.2    2.0
 09 01 01   1 16   -2.4  0.167 -9.000 -9.000 -999.  164.    173.8  0.05   0.89
0.37    2.36  184.   10.0  279.2    2.0
 09 01 01   1 17   -3.1  0.066 -9.000 -9.000 -999.   47.      8.1  0.05   0.89
0.63    1.76  181.   10.0  278.8    2.0
 09 01 01   1 18   -7.4  0.131 -9.000 -9.000 -999.  113.     27.0  0.05   0.89
1.00    2.36  207.   10.0  278.8    2.0
 09 01 01   1 19  -12.8  0.224 -9.000 -9.000 -999.  255.     79.1  0.05   0.89
1.00    3.36  194.   10.0  278.1    2.0
 09 01 01   1 20   -8.8  0.154 -9.000 -9.000 -999.  147.     37.4  0.02   0.89
1.00    2.86  147.   10.0  277.5    2.0
 09 01 01   1 21  -11.1  0.194 -9.000 -9.000 -999.  205.     59.4  0.02   0.89
1.00    3.36  170.   10.0  278.1    2.0
```

```
 09 01 01   1 22  -17.3  0.303 -9.000 -9.000 -999.  399.    143.9  0.02   0.89
1.00    4.86  152.   10.0  277.5    2.0
 09 01 01   1 23  -19.2  0.337 -9.000 -9.000 -999.  470.    178.8  0.02   0.89
1.00    5.36  160.   10.0  277.5    2.0
 09 01 01   1 24  -19.2  0.337 -9.000 -9.000 -999.  470.    178.8  0.02   0.89
1.00    5.36  170.   10.0  277.5    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 09 01 01 01   10.0 1  181.    2.36   278.2   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Users\agne\Desktop\Lakes AERMOD
Outputs\orland_mav\orland_mav.isc ***        11/08/21
 *** AERMET - VERSION  14134 ***   ***
                        ***        12:08:15

                                   PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL

                                   *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***


                                    ** CONC OF UNITIZED IN MICROGRAMS/M**3
                **



                         NETWORK
GROUP ID                       AVERAGE CONC               RECEPTOR  (XR, YR,
ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

SRCGP1    1ST HIGHEST VALUE IS     428.83692 AT (  567988.57,  4400394.65,
80.30,    80.30,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     328.30997 AT (  567888.57,  4400444.65,
80.60,    80.60,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     325.77895 AT (  568038.57,  4400294.65,
80.10,    80.10,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     287.77452 AT (  568038.57,  4400344.65,
80.00,    80.00,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     267.08210 AT (  567838.57,  4400494.65,
80.90,    80.90,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     262.99061 AT (  567938.57,  4400444.65,
80.50,    80.50,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     195.46474 AT (  567938.57,  4400394.65,
80.40,    80.40,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     166.32245 AT (  567788.57,  4400544.65,
```

```
81.20,    81.20,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     161.71504 AT (  567988.57,  4400344.65,
80.30,    80.30,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS     141.51302 AT (  567888.57,  4400494.65,
80.60,    80.60,    0.00)  GC  UCART1

SRCGP2    1ST HIGHEST VALUE IS     326.90647 AT (  568138.57,  4400344.65,
80.00,    80.00,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     296.56305 AT (  567938.57,  4400444.65,
80.50,    80.50,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     285.05720 AT (  568038.57,  4400394.65,
80.10,    80.10,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     267.91762 AT (  567838.57,  4400494.65,
80.90,    80.90,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     182.25010 AT (  568188.57,  4400244.65,
79.80,    79.80,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     177.11425 AT (  568138.57,  4400294.65,
80.00,    80.00,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     172.02352 AT (  568188.57,  4400294.65,
79.80,    79.80,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     165.89551 AT (  568088.57,  4400394.65,
80.00,    80.00,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     158.24748 AT (  567988.57,  4400444.65,
80.30,    80.30,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS     151.22490 AT (  567888.57,  4400494.65,
80.60,    80.60,    0.00)  GC  UCART1

SRCGP3    1ST HIGHEST VALUE IS     245.22453 AT (  568038.57,  4400394.65,
80.10,    80.10,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     234.70504 AT (  567938.57,  4400444.65,
80.50,    80.50,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     198.58297 AT (  568188.57,  4400294.65,
79.80,    79.80,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     194.77708 AT (  568138.57,  4400344.65,
80.00,    80.00,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     191.81852 AT (  568188.57,  4400244.65,
79.80,    79.80,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     186.88559 AT (  567838.57,  4400494.65,
80.90,    80.90,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     140.53048 AT (  567888.57,  4400494.65,
80.60,    80.60,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     133.10158 AT (  567788.57,  4400544.65,
81.20,    81.20,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     132.69023 AT (  567988.57,  4400444.65,
80.30,    80.30,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS     126.17272 AT (  568088.57,  4400394.65,
80.00,    80.00,    0.00)  GC  UCART1

SRCGP4    1ST HIGHEST VALUE IS     263.28603 AT (  568038.57,  4400594.65,
80.30,    80.30,    0.00)  GC  UCART1
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2ND HIGHEST VALUE IS 256.02666 AT (567938.57, 4400494.65, 80.60, 80.60, 0.00) GC UCART1
3RD HIGHEST VALUE IS 246.51581 AT (567988.57, 4400544.65, 80.40, 80.40, 0.00) GC UCART1
4TH HIGHEST VALUE IS 233.32602 AT (567838.57, 4400494.65, 80.90, 80.90, 0.00) GC UCART1
5TH HIGHEST VALUE IS 190.08775 AT (568038.57, 4400694.65, 80.60, 80.60, 0.00) GC UCART1
6TH HIGHEST VALUE IS 187.32685 AT (567888.57, 4400494.65, 80.60, 80.60, 0.00) GC UCART1
7TH HIGHEST VALUE IS 181.45246 AT (568038.57, 4400644.65, 80.50, 80.50, 0.00) GC UCART1
8TH HIGHEST VALUE IS 162.00418 AT (567788.57, 4400544.65, 81.20, 81.20, 0.00) GC UCART1
9TH HIGHEST VALUE IS 148.13876 AT (568038.57, 4400744.65, 80.70, 80.70, 0.00) GC UCART1
10TH HIGHEST VALUE IS 128.33393 AT (567938.57, 4400444.65, 80.50, 80.50, 0.00) GC UCART1

*** MODELOPTs: RegDFAULT CONC ELEV RURAL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF UNITIZED IN MICROGRAMS/M**3 **

NETWORK
GROUP ID AVERAGE CONC RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
- -

SRCGP5 1ST HIGHEST VALUE IS 306.21190 AT (567688.57, 4400594.65, 81.20, 81.20, 0.00) GC UCART1
2ND HIGHEST VALUE IS 296.04406 AT (567738.57, 4400544.65, 81.20, 81.20, 0.00) GC UCART1
3RD HIGHEST VALUE IS 277.39870 AT (567638.57, 4400594.65, 81.50, 81.50, 0.00) GC UCART1
4TH HIGHEST VALUE IS 253.17590 AT (567488.57, 4400694.65, 82.10, 82.10, 0.00) GC UCART1
5TH HIGHEST VALUE IS 244.85338 AT (567538.57, 4400644.65, 81.80, 81.80, 0.00) GC UCART1

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          6TH HIGHEST VALUE IS     232.80634 AT (  567588.57,  4400644.65,
81.70,    81.70,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     191.11102 AT (  567438.57,  4400694.65,
82.30,    82.30,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     141.74843 AT (  567688.57,  4400544.65,
81.20,    81.20,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     132.69189 AT (  567588.57,  4400594.65,
81.50,    81.50,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS     131.62562 AT (  567538.57,  4400694.65,
81.80,    81.80,    0.00)  GC  UCART1

SRCGP6    1ST HIGHEST VALUE IS    1274.50516 AT (  567788.57,  4400494.65,
81.10,    81.10,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS    1223.97481 AT (  567769.18,  4400506.39,
81.21,    81.21,    0.00)  DC
          3RD HIGHEST VALUE IS     433.44854 AT (  567788.57,  4400444.65,
81.00,    81.00,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     307.57505 AT (  567788.57,  4400544.65,
81.20,    81.20,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     247.03590 AT (  567738.57,  4400544.65,
81.20,    81.20,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     240.72647 AT (  567838.57,  4400444.65,
80.90,    80.90,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     145.10647 AT (  567838.57,  4400494.65,
80.90,    80.90,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     145.00163 AT (  567838.57,  4400394.65,
80.90,    80.90,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     142.02923 AT (  567738.57,  4400494.65,
81.20,    81.20,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS     140.19894 AT (  567738.57,  4400594.65,
81.20,    81.20,    0.00)  GC  UCART1

SRCGP7    1ST HIGHEST VALUE IS     906.17650 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     391.02902 AT (  567688.57,  4400394.65,
81.40,    81.40,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     369.56225 AT (  567638.57,  4400494.65,
81.50,    81.50,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     220.68616 AT (  567626.61,  4400502.37,
81.52,    81.52,    0.00)  DC
          5TH HIGHEST VALUE IS     219.18835 AT (  567688.57,  4400494.65,
81.40,    81.40,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     208.91441 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     189.12728 AT (  567638.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     159.46864 AT (  567638.57,  4400544.65,
81.50,    81.50,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     133.69904 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
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         10TH HIGHEST VALUE IS     127.24458 AT (  567767.17,  4400395.95,
81.17,    81.17,    0.00)  DC

SRCGP8    1ST HIGHEST VALUE IS     506.10213 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     258.37342 AT (  567767.17,  4400395.95,
81.17,    81.17,    0.00)  DC
          3RD HIGHEST VALUE IS     194.82544 AT (  567688.57,  4400494.65,
81.40,    81.40,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     191.07826 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     170.09441 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     152.86012 AT (  567788.57,  4400394.65,
80.90,    80.90,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     142.73083 AT (  567788.57,  4400344.65,
80.90,    80.90,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     136.52217 AT (  567688.57,  4400394.65,
81.40,    81.40,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS     112.87171 AT (  567738.57,  4400444.65,
81.20,    81.20,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS      87.84351 AT (  567788.57,  4400294.65,
80.90,    80.90,    0.00)  GC  UCART1
↑ *** AERMOD - VERSION  19191 ***   *** C:\Users\agne\Desktop\Lakes AERMOD
Outputs\orland_mav\orland_mav.isc ***        11/08/21
 *** AERMET - VERSION  14134 ***   ***
                        ***        12:08:15

                                   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL

                                   *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***


                                    ** CONC OF UNITIZED IN MICROGRAMS/M**3
                **



                         NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR  (XR, YR,
ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

SRCGP9    1ST HIGHEST VALUE IS     636.52910 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     332.01498 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     277.13993 AT (  567688.57,  4400394.65,
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81.40,    81.40,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     172.33974 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     168.19954 AT (  567688.57,  4400494.65,
81.40,    81.40,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     158.83779 AT (  567767.17,  4400395.95,
81.17,    81.17,    0.00)  DC
          7TH HIGHEST VALUE IS     114.29467 AT (  567788.57,  4400344.65,
80.90,    80.90,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS      97.75887 AT (  567688.57,  4400344.65,
81.30,    81.30,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS      97.35680 AT (  567788.57,  4400394.65,
80.90,    80.90,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS      89.09448 AT (  567638.57,  4400494.65,
81.50,    81.50,    0.00)  GC  UCART1

SRCGP10   1ST HIGHEST VALUE IS     809.93541 AT (  567688.57,  4400394.65,
81.40,    81.40,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     264.87809 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     191.71523 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     180.79630 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS     174.39425 AT (  567688.57,  4400344.65,
81.30,    81.30,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     118.98321 AT (  567638.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     109.88732 AT (  567638.57,  4400494.65,
81.50,    81.50,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS     103.02498 AT (  567738.57,  4400294.65,
81.20,    81.20,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS      96.40272 AT (  567688.57,  4400494.65,
81.40,    81.40,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS      95.80078 AT (  567788.57,  4400344.65,
80.90,    80.90,    0.00)  GC  UCART1

SRCGP11   1ST HIGHEST VALUE IS     486.37223 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS     337.09218 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS     218.24092 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS     174.65162 AT (  567767.17,  4400395.95,
81.17,    81.17,    0.00)  DC
          5TH HIGHEST VALUE IS     168.51511 AT (  567688.57,  4400394.65,
81.40,    81.40,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS     141.92101 AT (  567788.57,  4400344.65,
80.90,    80.90,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS     138.34529 AT (  567688.57,  4400494.65,
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81.40,   81.40,   0.00) GC UCART1
          8TH HIGHEST VALUE IS   104.63454 AT (567738.57, 4400444.65,
81.20,   81.20,   0.00) GC UCART1
          9TH HIGHEST VALUE IS   96.83019 AT (567788.57, 4400294.65,
80.90,   80.90,   0.00) GC UCART1
         10TH HIGHEST VALUE IS   95.49349 AT (567788.57, 4400394.65,
80.90,   80.90,   0.00) GC UCART1

SRCGP12   1ST HIGHEST VALUE IS   532.21741 AT (567738.57, 4400394.65,
81.20,   81.20,   0.00) GC UCART1
          2ND HIGHEST VALUE IS   363.39446 AT (567767.17, 4400395.95,
81.17,   81.17,   0.00) DC
          3RD HIGHEST VALUE IS   241.20580 AT (567738.57, 4400444.65,
81.20,   81.20,   0.00) GC UCART1
          4TH HIGHEST VALUE IS   201.99258 AT (567788.57, 4400394.65,
80.90,   80.90,   0.00) GC UCART1
          5TH HIGHEST VALUE IS   160.12526 AT (567788.57, 4400344.65,
80.90,   80.90,   0.00) GC UCART1
          6TH HIGHEST VALUE IS   142.66637 AT (567738.57, 4400344.65,
81.20,   81.20,   0.00) GC UCART1
          7TH HIGHEST VALUE IS   135.51655 AT (567688.57, 4400494.65,
81.40,   81.40,   0.00) GC UCART1
          8TH HIGHEST VALUE IS   113.19322 AT (567738.57, 4400494.65,
81.20,   81.20,   0.00) GC UCART1
          9TH HIGHEST VALUE IS   107.80975 AT (567688.57, 4400444.65,
81.50,   81.50,   0.00) GC UCART1
         10TH HIGHEST VALUE IS   91.00689 AT (567838.57, 4400344.65,
80.70,   80.70,   0.00) GC UCART1

*** MODELOPTs: RegDFAULT CONC ELEV RURAL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER   5 YEARS ***

** CONC OF UNITIZED IN MICROGRAMS/M**3 **

NETWORK
GROUP ID   AVERAGE CONC   RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
- -

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ALL       1ST HIGHEST VALUE IS    2528.04147 AT (  567688.57,  4400444.65,
81.50,    81.50,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS    2354.93662 AT (  567738.57,  4400394.65,
81.20,    81.20,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS    1911.56445 AT (  567688.57,  4400394.65,
81.40,    81.40,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS    1826.43497 AT (  567788.57,  4400494.65,
81.10,    81.10,    0.00)  GC  UCART1
          5TH HIGHEST VALUE IS    1746.07089 AT (  567769.18,  4400506.39,
81.21,    81.21,    0.00)  DC
          6TH HIGHEST VALUE IS    1318.34185 AT (  567767.17,  4400395.95,
81.17,    81.17,    0.00)  DC
          7TH HIGHEST VALUE IS    1234.75724 AT (  567838.57,  4400494.65,
80.90,    80.90,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS    1110.94930 AT (  567788.57,  4400544.65,
81.20,    81.20,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS    1105.12108 AT (  567738.57,  4400344.65,
81.20,    81.20,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS    1076.10622 AT (  567688.57,  4400494.65,
81.40,    81.40,    0.00)  GC  UCART1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   *** C:\Users\agne\Desktop\Lakes AERMOD
Outputs\orland_mav\orland_mav.isc ***        11/08/21
 *** AERMET - VERSION  14134 ***   ***
                        ***        12:08:15

                                   PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL

                                                ***  THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                    ** CONC OF UNITIZED IN MICROGRAMS/M**3
                **

                                                          DATE
                                          NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)            RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

SRCGP1   HIGH   1ST HIGH VALUE IS    8124.42729  ON 11012906: AT (  567838.57,
4400494.65,    80.90,    80.90,    0.00)  GC  UCART1
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SRCGP2   HIGH   1ST HIGH VALUE IS    4459.28802  ON 09120402: AT (  568138.57,
4400344.65,    80.00,    80.00,    0.00)  GC  UCART1

SRCGP3   HIGH   1ST HIGH VALUE IS    4677.44899  ON 10123019: AT (  568238.57,
4400294.65,    79.70,    79.70,    0.00)  GC  UCART1

SRCGP4   HIGH   1ST HIGH VALUE IS    5016.35469  ON 12121403: AT (  567888.57,
4400494.65,    80.60,    80.60,    0.00)  GC  UCART1

SRCGP5   HIGH   1ST HIGH VALUE IS    8097.38604  ON 09022202: AT (  567388.57,
4400744.65,    82.50,    82.50,    0.00)  GC  UCART1

SRCGP6   HIGH   1ST HIGH VALUE IS   14144.09000  ON 11021121: AT (  567788.57,
4400544.65,    81.20,    81.20,    0.00)  GC  UCART1

SRCGP7   HIGH   1ST HIGH VALUE IS   14520.48816  ON 11121317: AT (  567638.57,
4400544.65,    81.50,    81.50,    0.00)  GC  UCART1

SRCGP8   HIGH   1ST HIGH VALUE IS    7524.27799  ON 11060124: AT (  567738.57,
4400444.65,    81.20,    81.20,    0.00)  GC  UCART1

SRCGP9   HIGH   1ST HIGH VALUE IS    6132.63802  ON 13102318: AT (  567688.57,
4400444.65,    81.50,    81.50,    0.00)  GC  UCART1

SRCGP10  HIGH   1ST HIGH VALUE IS    6933.82023  ON 13081922: AT (  567688.57,
4400394.65,    81.40,    81.40,    0.00)  GC  UCART1

SRCGP11  HIGH   1ST HIGH VALUE IS    6962.64909  ON 11080222: AT (  567688.57,
4400394.65,    81.40,    81.40,    0.00)  GC  UCART1

SRCGP12  HIGH   1ST HIGH VALUE IS    6834.09333  ON 11061222: AT (  567738.57,
4400444.65,    81.20,    81.20,    0.00)  GC  UCART1

ALL      HIGH   1ST HIGH VALUE IS   25339.17219  ON 12013019: AT (  567788.57,
4400544.65,    81.20,    81.20,    0.00)  GC  UCART1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

```
*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            1 Warning Message(s)
A Total of         7836 Informational Message(s)

A Total of        43872 Hours Were Processed

A Total of         6436 Calm Hours Identified

A Total of         1400 Missing Hours Identified (  3.19 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
MX W481   43873         MAIN: Data Remaining After End of Year. Number of Hours=
       48
```

Attachment 4.4

Biological Resources Assessment Maverik Fuel Center Project, ECORP Consulting, Inc.

Biological Resources Assessment

Maverik Fuel Center Project

Butte County, California

Prepared For:

City of Orland

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

DRAFT

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
BA	Biological Assessment
BCC	Birds of Conservation Concern
BO	Biological Opinion
BRA	Biological Resources Assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
F	Fahrenheit
LSA	Lake or Streambed Alteration
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Maverik Fueling Station Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
Study Area	Environmental Study Limits
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

On behalf of the City of Orland, ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the Maverik Fuel Center Project (Project) located in the city of Orland, Glenn County, California. For this BRA, the Environmental Study Limits (Study Area) is 5.77 acres. The purpose of the assessment was to collect information on the biological resources present and evaluate the potential for special-status species and their habitats to occur in the Study Area, assess potential biological impacts related to Project activities, and identify potential mitigation measures to inform the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Project Location

The Study Area is located in section 21, Township 22 North, and Range 03 West (Mount Diablo Base Meridian) of the Kirkwood, California 7.5' topographic quadrangle (U.S. Geological Survey [USGS] 1950; Figure 1-1). The Study Area is located in the southwestern quadrant of the Newville Road and Commerce Lane intersection in Orland, California. The approximate center of the Study Area is located at NAD83 coordinates 39.751095° latitude and -122.209809° longitude within the Sacramento-Stone Corral Watershed (Hydrologic Unit Code #18020104; Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Purpose of this Biological Resources Assessment

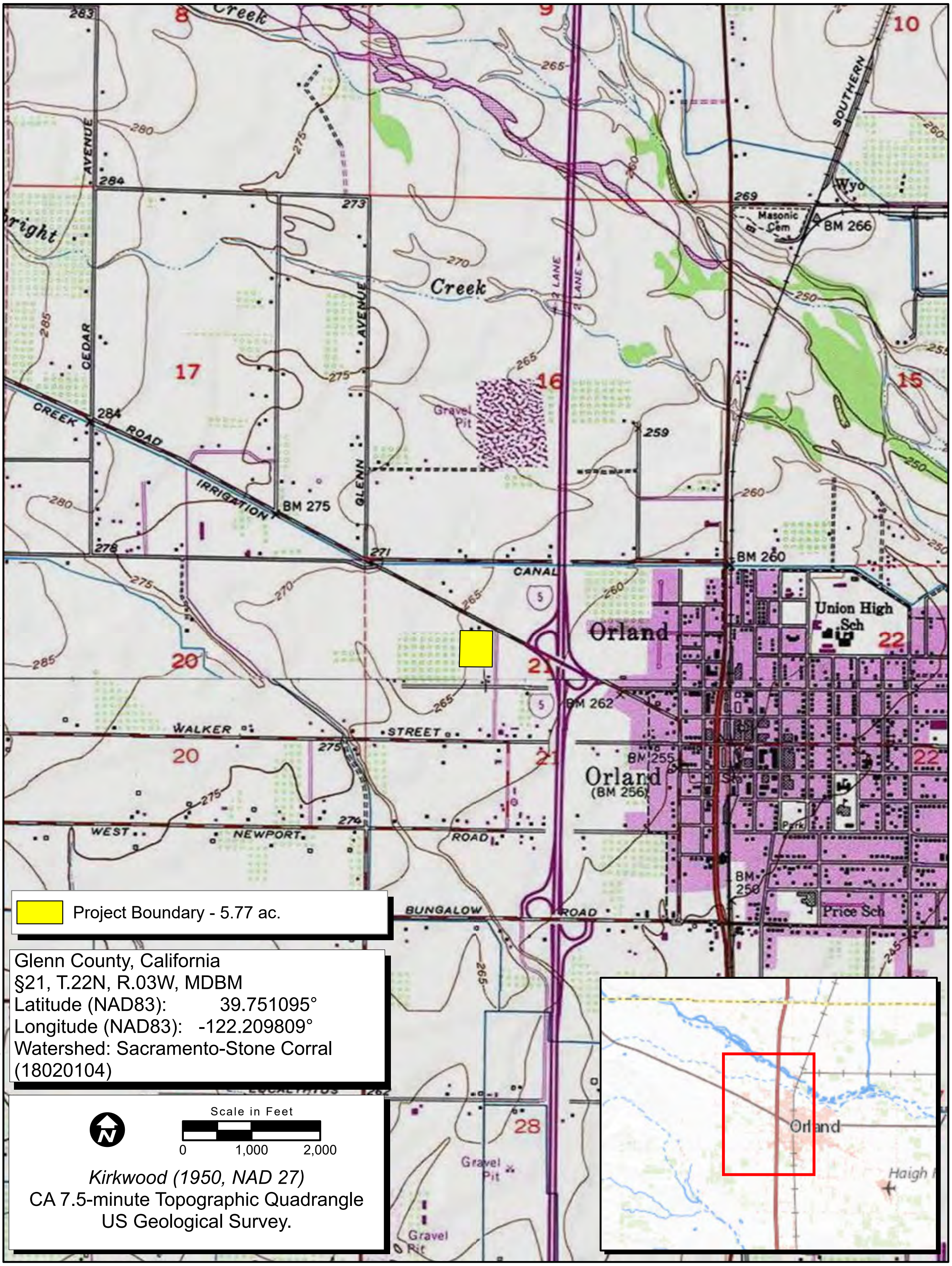
The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitats, and sensitive habitats such as wetlands, riparian communities, and sensitive natural communities within the Study Area.

This assessment includes information generated from literature review and an assessment-level reconnaissance site visit. This BRA does not include determinate field surveys for plant and animal species, nor does it include an aquatic resources delineation performed according to U.S. Army Corps of Engineers (USACE) protocol.

This assessment includes a preliminary analysis of impacts on biological resources anticipated to result from the Project, as presently defined. The mitigation recommendations presented in this assessment are based on the preliminary analysis, a review of existing literature, and the results of site reconnaissance surveys.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;



Location: N:\2021\2021-186 Maverick Fueling Center\MAPS\Location_Vicinity\MFC_LnV.aprx - MFC_LnV_20210827 (kturnquist - 8/27/2021)

Map Date: 8/27/2021
Sources: ESRI, USGS

Figure 1-1. Project Location and Vicinity

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2021-186 Maverick Fueling Center

- are identified as a species of special concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), "plants about which more information is needed" (i.e., species with a CRPR of 3), or "plants of limited distribution – a watch list" (i.e., species with a CRPR of 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. While other species (i.e., special-status lichens, California Natural Diversity Database [CNDDB] tracked species with no special status) are sometimes found in database searches or within the literature, these species were not included within this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a Biological Opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

2.1.1.1 Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical

Habitat for listed species. If direct or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a Biological Assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO, which may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

2.1.1.2 Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of the ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and

2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential lifecycle needs of the species. These include but are not limited to the following:

1. Space for individual and population growth and for normal behavior;

2. Food, water, air, light, minerals, or other nutritional or physiological requirements;

3. Cover or shelter;

4. Sites for breeding, reproduction, or rearing (or development) of offspring;

5. Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species;

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized under the MBTA, USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of non-game birds in § 3800, migratory birds in § 3513, and birds of prey in § 3503.5 of the California Fish and Game Code.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "Waters of the United States" without a permit from the USACE. The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California, this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State or Local Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) protects species of fish, wildlife, and plants listed by the state as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal or California ESAs. Fully protected species are identified in the California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare." The NPPA prohibits the take of plants listed under the NPPA, but the NPPA contains a number of exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.2.4 California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a number of sections that specifically protect certain birds:

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.
- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.
- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.
- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration (LSA) to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the LSA Agreement.

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the state Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirement for these activities.

2.2.7 California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria parallel the definitions used in the ESA, California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under the ESA, California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as SSC by CDFW, birds identified as a conservation concern by USFWS, and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

2.2.7.1 Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the ESA, California ESA, or California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding range.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.

- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- SSC are typically associated with habitats that are threatened.

Projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.7.2 U.S. Fish and Wildlife Service Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2008) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.7.3 Sensitive Natural Communities

The CDFW maintains the California Natural Community List (CDFW 2020), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009), along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Impacts to sensitive natural communities may be considered significant under CEQA.

2.2.7.4 California Rare Plant Ranks

The CNPS maintains the electronic Inventory of Rare and Endangered Plants of California (CNPS 2021), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private-sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the CNDDB. The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere.
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere.
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere.
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere.
- Rare Plant Rank 3 – a review list of plants about which more information is needed.
- Rare Plant Rank 4 – a watch list of plants of limited distribution.

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat).
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat).
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2021).

Substantial impacts to plants ranked 1A, 1B, 2, and 3 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 4 and at the discretion of the CEQA lead agency.

2.2.7.5 California Environmental Quality Act Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines, which provides examples of impacts that would normally be considered significant.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant under CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

3.0 METHODS

3.1 Literature Review

The following resources were queried to determine the special-status species that had been documented within or in the vicinity of the Study Area:

- CDFW CNDDB data for the "Kirkwood, California" 7.5-minute USGS quadrangle (CDFW 2021).
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2021a).
- CNPS electronic Inventory of Rare and Endangered Plants of California for the "Kirkwood, California" 7.5-minute USGS quadrangle and the eight surrounding USGS quadrangles (CNPS 2021).
- National Oceanic and Atmospheric Administration (NOAA)/NMFS species list for the Kirkwood, California quadrangle (NOAA 2016).

The results of the database queries are included in Attachment A.

3.2 Field Surveys Conducted

This BRA includes a reconnaissance site visit to generally characterize onsite resources including plant communities, wildlife, special-status species, and sensitive natural communities. The field assessment was conducted by ECORP biologist Keith Kwan on September 17, 2021. The purpose of this assessment was to identify potential biological resources constraints (e.g., aquatic resources, special-status species) onsite, identify regulatory requirements for development of the site, and assess potential mitigation needs. During the assessment, the following biological resource information was collected:

- Direct observations of special-status species;
- Animal and plant species directly observed;
- Habitat and vegetation communities; and
- Identification of aquatic resources.

To date, no detailed field surveys conducted according to Agency protocol have been performed for the Study Area.

3.3 Special-Status Species Considered for the Project

Based on species occurrence information from the literature review and field observations, a list of special-status species considered to have the potential to occur within the Study Area was generated (Table 4-1 in Section 4.6). Each of the species that were considered as potentially occurring within the Study Area or vicinity was evaluated based on the following criteria:

- **Present** - Species was observed during field surveys or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occur, or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements), or the species is not known to occur within the Study Area or the vicinity of the Study Area based on CNDDB records and other documentation or determinate field surveys.

3.4 Sensitive Natural Communities

A Manual of California Vegetation, Second Edition (Sawyer et al. 2009) was used to describe vegetation communities onsite. Sensitive natural communities are those that are listed in the CNDDB.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Study Area is located on an undeveloped parcel in the southwestern portion of the city of Orland and is situated at an elevation of approximately 265 feet above mean sea level in the Sacramento Valley subregion of the Great Central Valley region of California (Baldwin et al. 2012). The average winter minimum temperature is 38.0 degrees Fahrenheit (˚F) and the average summer maximum temperature 91.9˚F; the average annual precipitation is approximately 23.01 inches (NOAA 2021).

The Study Area is currently undeveloped fallow land but has been extensively farmed and leveled in the past. The entire Study Area was planted with row crops as seen on Google Earth aerial photographs from 2013. The surrounding lands include undeveloped fallow farm land, commercial and rural residential development, and orchards.

Representative photographs of the Study Area are included as Attachment B.

4.2 Vegetation Communities

The vegetation community of the entire Study Area most closely resembles the *Avena* spp.-*Bromus* spp. Herbaceous Semi-Natural Alliance (Wild oats and annual brome grasslands). This vegetation community is dominated by nonnative naturalized weedy grasses and forbs, including wild oats (*Avena* species), ripgut brome (*Bromus diandrus*), and filaree (*Erodium botrys*). This vegetation community has no global and state rarity ranking and is not considered a sensitive natural community according to CDFW. There is a small patch of tree-of-heaven (*Ailanthus altissima*) trees in the northwestern corner and along the northern boundary of the Study Area. A mulberry (*Morus* species) tree is located outside of the western boundary of the Study Area. Portions of the Study Area are denuded likely due to soil compaction and historic farming practices.

4.3 Wildlife Observations, Movement Corridors, and Nursery Sites

The Study Area lacks any significant wildlife habitat elements, such as aquatic habitat, emergent wetlands, or woodlands. While the Study Area is currently not developed, the surrounding lands are comprised of a matrix of developed and undeveloped lands with extensively travelled paved roads. The Study Area is not located within an area mapped in the Essential Habitat Connectivity Project (Spencer et al. 2010). Wildlife observed during the reconnaissance site visit included Eurasian collared-dove (*Streptopelia decaocto*), house finch (*Haemorhous mexicanus*), and Brewer's blackbird (*Euphagus cyanocephalus*) seen in flight over the site. There is minimal wildlife use onsite, and no movement/migratory corridors or nursery site are present. No California ground squirrels (*Otospermophilus beecheyi*) or their burrows, including burrow surrogates (e.g., debris piles, pipes, or culverts), or other small mammal burrows were found onsite.

4.4 Soils

According to the Web Soil Survey, three soil units have been mapped within the Study Area (Figure 4-1; (NRCS 2021). These are:

- Wh – Wyo gravelly loam, moderately deep over gravel;
- Czk – Cortina gravelly fine sandy loam, shallow; and
- Wg – Wyo loam, deep over gravel

None of these soil units are derived from serpentinite or other ultramafic parent materials and none are hydric or contain hydric component or inclusions (NRCS 2021; Attachment C).

4.5 Aquatic Resources

A preliminary aquatic resources assessment was performed to identify potential Waters of the U.S./State concurrent with the BRA site visit. There are no aquatic resources present within the Study Area. The entire Study Area has been leveled and historically farmed. There are no topographic depressions or other topographic relief onsite that could support pooling water or drainageways to extent that wetland indicators would persist. According to the National Wetlands Inventory, no aquatic resources have been previously mapped onsite (Figure 4-2; USFWS 2021b).

4.6 Evaluation of Potentially Occurring Special-Status Species

Table 4-1 lists all the special-status plant and wildlife species (as defined in Section 3.3) identified in the literature review as potentially occurring within the Study Area. Included in this table is the listing status for each species, a brief habitat description, and a determination on the potential to occur within the Study Area. Following the table is a brief description and discussion of each special-status species that is known to occur in the Study Area (from the literature review) or is considered to potentially occur within the Study Area.

Figure 4-1.
Natural Resources Conservation Service Soil Types

Map Features

Project Boundary - 5.77 ac.

Series Key - Series Name

Wh - Wyo gravelly loam, moderately deep over gravel

Czk - Cortina gravelly fine sandy loam, shallow

Wg - Wyo loam, deep over gravel

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Glenn County, CA

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2021\2021-186 Maverick Fueling Center\MAPS\Soils_and_Geology\MFC_Soils.aprx ()-kturnquist 8/31/2021

2021-186 Maverick Fueling Center

Scale in Feet
0 100

Photo Source: NAIP 2020

Map Date: 8/31/2021

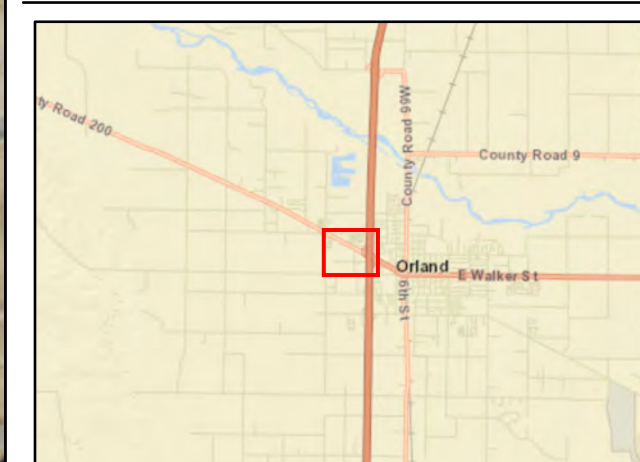
Map Contents

Project Boundary - 5.77 ac.

NWI Type

Riverine

Sources: NAIP 2020



ECORP: N:\2021\2021-186 Maverick Fueling Center\MAPS\Jurisdictional_Delineation\MFC_NWI.aprx ()-kturnquist 8/31/2021

Map Date: 8/31/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 300

Figure 4-2. National Wetlands Inventory

2021-186 Maverick Fueling Center

Table 4-1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA/ NPPA**	**Other**			
Plants						
Henderson's bent grass *(Agrostis hendersonii)*	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands (230'–1,001').	April–June	Absent-there is no suitable habitat onsite.
Depauperate milk-vetch (*Astragalus pauperculus*)	-	-	4.3	Occurs within vernally mesic and volcanic soils in chaparral, cismontane woodland, and valley and foothill grasslands (197'-3,986')	March-June	Absent-there is no suitable habitat onsite.
Pink creamsacs (*Castilleja rubicundula* var. *rubicundula*)	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April-June	Absent-there is no suitable habitat onsite.
Silky cryptantha (*Cryptantha crinita*)	–	–	1B.2	Gravelly streambeds of cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grassland habitats (200'–3,987').	April–May	Absent-there is no suitable habitat onsite.
Dwarf downingia *(Downingia pusilla)*	–	–	2B.2	Mesic areas in valley and foothill grassland, and vernal pools. Species appears to have an affinity for slight disturbance (i.e., scraped depressions, ditches) (Baldwin et al. 2012, CDFW 2018) (3'–1,460').	March–May	Absent-there is no suitable habitat onsite.
Hoover's spurge (*Euphorbia hooveria*)	FT	–	1B.2	Vernal pools (82'–821').	July-September	Absent-there is no suitable habitat onsite.
Stony Creek spurge (*Euphorbia ocellata* ssp. *rattanii*)	–	–	1B.2	Chaparral, streambanks of riparian scrub, and sandy or rocky substrates of valley and foothill grassland (213'–2,625').	May–October	Absent-there is no suitable habitat onsite.

Table 4-1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Adobe lily *(Fritillaria pluriflora)*	–	–	1B.2	Adobe soils in chaparral, cismontane woodland, and valley and foothill grassland (197'–2,313').	February–April	Absent-there is no suitable habitat onsite.
Boggs Lake hedge-hyssop *(Gratiola heterosepala)*	–	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (33'–7,792').	April–August	Absent-there is no suitable habitat onsite.
Hogwallow starfish *(Hesperevax caulescens)*	–	–	4.2	Sometimes alkaline in mesic areas with clay soil within valley and foothill grassland and shallow vernal pools (0'–1,657').	March-June	Absent-there is no suitable habitat onsite.
Red Bluff dwarf rush *(Juncus leiospermus* var. *leiospermus)*	–	–	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools (115'–4,101').	March–June	Absent-there is no suitable habitat onsite.
Legenere *(Legenere limosa)*	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005) (3'–2,887').	April–June	Absent-there is no suitable habitat onsite.
Tehama navarretia (*Navarretia heterandra*)	–	–	4.3	Mesic areas in valley and foothill grassland and vernal pools (98'–3,314').	April–June	Absent-there is no suitable habitat onsite.
Baker's navarretia *(Navarretia leucocephala* ssp. *bakeri)*	–	–	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'–5,709').	April–July	Absent-there is no suitable habitat onsite.
Hairy Orcutt grass *(Orcuttia pilosa)*	FE	CE	1B.1	Vernal pools (151'–656').	May-September	Absent-there is no suitable habitat onsite.

Table 4-1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA/ NPPA**	**Other**			
Slender Orcutt grass *(Orcuttia tenuis)*	FT	CE	1B.1	Vernal pools, often gravelly (115'–5,774').	May–September	Absent-there is no suitable habitat onsite.
Ahart's paronychia (*Paronychia ahartii*)	–	–	1B.1	Well-drained rocky outcrops, often vernal pool edges, and volcanic upland (Hartman and Rabeler 2012) of cismontane woodland, valley and foothill grassland, and vernal pools (98'–1673').	February–June	Absent-there is no suitable habitat onsite.
Greene's tuctoria (*Tuctoria greenei*)	FE	CR	1B.1	Vernal pools (98'–3,510').	May-July	Absent-there is no suitable habitat onsite.
Brazilian watermeal (*Wolffia brasiliensis*)	-	-	2B.3	Assorted shallow freshwater marshes and swamps (66'–328').	April-December	Absent-there is no suitable habitat onsite.
Invertebrates						
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Seasonal ponds, vernal pools, and swales.	November-April	Absent-No suitable aquatic habitat onsite.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent-there is no suitable habitat onsite.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Generally, low-alkalinity seasonal pools in grasslands; vernal pools and seasonal swales are generally underlain by hardpan or sandstone.	November-April	Absent-No suitable aquatic habitat onsite.
Monarch butterfly (*Danaus plexippus*)	FC	-	-	Lays eggs on obligate milkweed (primarily *Asclepias* spp.) host plants. Other requirements include breeding season and migration season nectar sources,	N/A	Absent-there is no suitable habitat onsite.
Fish						
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent-there is no suitable habitat onsite.

Table 4-1. Potentially Occurring Special-Status Species						
	Status					
Common Name (Scientific Name)	ESA	CESA/ NPPA	Other	Habitat Description	Survey Period	Potential to Occur Onsite
Steelhead (CA Central Valley Distinct Population Segment) (*Oncorhynchus mykiss irideus*)	FT	-	-	Fast-flowing, well-oxygenated rivers and streams	N/A	Absent-there is no suitable habitat onsite.
Chinook salmon (Central Valley spring-run Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*)	FT	CT	-	Undammed rivers, streams, creeks.	N/A	Absent-there is no suitable habitat onsite.
Chinook salmon (Sacramento River winter-run ESU) *(Oncorhynchus tshawytscha)*	FE	CE	-	Undammed rivers, streams, creeks.	N/A	Absent-there is no suitable habitat onsite.
Amphibians						
California red-legged frog (*Rana draytonii*)	FT	**-**	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent-there is no suitable habitat onsite.
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent-there is no suitable habitat onsite.
Reptiles						
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent-there is no suitable habitat onsite.

Table 4-1. Potentially Occurring Special-Status Species						
	Status					
Common Name (Scientific Name)	**ESA**	**CESA/ NPPA**	**Other**	**Habitat Description**	**Survey Period**	**Potential to Occur Onsite**
Birds						
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent-there is no suitable habitat onsite.
Swainson's hawk (*Buteo swainsoni*)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/ harvesting, irrigated pastures	March-August	Absent-there is no suitable nesting or foraging habitat onsite.
Burrowing owl *(Athene cunicularia)*	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Absent-there are no burrows or burrow surrogates onsite.

Table 4-1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential to Occur Onsite**
	ESA	**CESA/ NPPA**	**Other**			
Nuttall's woodpecker *(Dryobates nuttallii)*	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent-there is no suitable nesting habitat onsite.
Yellow-billed magpie (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Absent-there is no suitable nesting habitat onsite.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent-there is no suitable nesting habitat onsite.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent-there is no suitable nesting habitat onsite.

Table 4-1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Mammals						
American badger *(Taxidea taxus)*	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Absent-there is no suitable habitat onsite.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered
FT	FESA listed, Threatened
FC	FESA Candidate Species
BCC	USFWS Bird of Conservation Concern (USFWS 2021c)
CT	CESA- or NPPA-listed, Threatened
CE	CESA or NPPA listed, Endangered
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians)
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern
1B	CRPR/Rare or Endangered in California and elsewhere
2B	Plants rare, threatened, or endangered in California but more common elsewhere
3	CRPR/Plants About Which More Information is Needed – A Review List
4	CRPR/Plants of Limited Distribution – A Watch List
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years)

4.6.1 Plants

Nineteen special-status plants have been identified as potentially occurring for the Study Area based on the initial literature review and database queries (Table 4-1). However, it was determined that all of these special-status plant species were absent due to a lack of suitable habitat onsite. No further discussion of these species is included in the report.

4.6.2 Invertebrates

Four special-status invertebrate were identified as potentially occurring in the Study Area based on the initial literature review and database queries, but it was determined that there is no suitable habitat onsite for any of these species. No further discussion of these species is provided in this analysis.

4.6.3 Fish

Four special-status fish were identified as having potential to occur in the Study Area based on the literature review (Table 4-1). However, after the site visit, all of these special-status species were considered absent because there is no suitable habitat in the Study Area. No further discussion of these species is provided in this analysis.

4.6.4 Amphibians

Two special-status amphibians were identified as having potential to occur in the Study Area based on the literature review (Table 4-1). However, upon further analysis and after the site visit, both of these special-status species are absent due to a lack of suitable habitat onsite. No further discussion of these species is provided in this analysis.

4.6.5 Reptiles

One special-status reptile was identified as having the potential to occur in the Study Area based on the literature review (Table 4-1). However, upon further analysis and after the site visit, the giant garter snake (*Thamnophis gigas*) was considered absent from the site due to the lack of suitable habitat. No further discussion of this species is provided in this analysis.

4.6.6 Birds

Seven special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 4-1). However, upon further analysis and after the site visit, all of these species were considered absent from the site due to the lack of suitable habitat or the Study Area is outside the known breeding range of the species. No further discussion of these species is provided in this analysis.

4.6.7 Mammals

Three special-status mammal species were identified as having the potential to occur within the Study Area based on the literature review (Table 4-1). However, upon further analysis and after the site visit, all of these species were considered absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

4.7 Sensitive Natural Communities

One sensitive natural community, Great Valley Valley Oak Riparian Forest, was identified as having the potential to occur within or in the vicinity of the Study Area based on the literature review (CDFW 2021). This community or any other sensitive natural community is not present within the Study Area. No further discussion of sensitive natural communities is provided within this assessment.

5.0 IMPACT ANALYSIS

This section specifically addresses the questions raised by the CEQA - Appendix G Environmental Checklist Form, IV. Biological Resources. This impact analysis assumes the Project will implement measures that fulfill the intent of recommended measures described in Section 6.0.

5.1 Special Status Species

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

No special-status species are known to occur within the Study Area, and there is no potential suitable habitat for any special-status species present.

5.2 Riparian Habitat and Sensitive Natural Communities

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 CDFW or USFWS?

The Study Area supports weedy nonnative annual grassland habitat. There are no sensitive natural communities as defined by CDFW, and there is no riparian habitat onsite. Therefore, the Project will not impact riparian habitat or sensitive natural communities.

5.3 Aquatic Resources, Including Waters of the U.S. and State

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Based on the preliminary aquatic resources assessment, there are no aquatic resources, potential waters of the U.S. or State, present within the Study Area.

5.4 Wildlife Movement/Corridors

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?

The Study Area provides limited migratory opportunities for terrestrial wildlife because of the developed nature of the surrounding lands and the absence of significant wildlife habitat elements onsite. Project construction is likely to temporarily disturb and displace some wildlife from the vicinity of the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume but will likely be more limited through the Study Area. The Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites, and no nursery sites were observed within the Study Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

5.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with local policies or ordinances protecting biological resources.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not covered by any local, regional, or state conservation plan. Therefore, the Project would not conflict with a local, regional, or state conservation plan. There would be no impact.

6.0 RECOMMENDATIONS

The Study Area does not support aquatic resources, potential waters of the U.S. or State, and does not support sensitive natural communities, special-status species or potentially suitable habitat special-status species. Therefore, there are no recommendations (e.g., avoidance, minimization, or mitigation) pertaining to biological resources for this Study Area.

7.0 REFERENCES

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LIST OF ATTACHMENTS

ATTACHMENT A

Results of Database Queries

Inventory of Rare and Endangered Plants of California

California Native Plant Society

HOME ABOUT CHANGES REVIEW HELP

Search: Simple Advanced

Search for species and Go

Search Results

Back Export Results

19 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3912272,3912283,3912282,3912281,3912271,3912261,3912262,3912263,3912273**]

Scientific Name | Common Name | Family | Lifeform | Blooming Period | Fed List | State List | Global Rank | State Rank | CA Rare Plant Rank | General Habitats | Micro Habitats | Lowest Elevation | Highest Elevation | CA Endemic | Date Added | Photo

Search:

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2	No Photo Available
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	No Photo Available
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	None	None	G5T2	S2	1B.2	No Photo Available
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
Euphorbia hooveri	Hoover's spurge	Euphorbiaceae	annual herb	Jul-Sep(Oct)	FT	None	G1	S1	1B.2	No Photo Available
Euphorbia ocellata ssp. rattanii	Stony Creek spurge	Euphorbiaceae	annual herb	May-Oct	None	None	G4T2?	S2?	1B.2	No Photo Available
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	No Photo Available
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	No Photo Available
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	No Photo Available

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	No Photo Available
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	No Photo Available
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	 ©2021 Scot Loring
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	No Photo Available
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	FE	CE	G1	S1	1B.1	No Photo Available
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	No Photo Available
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	No Photo Available
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	No Photo Available
Wolffia brasiliensis	Brazilian watermeal	Araceae	perennial herb (aquatic)	Apr-Dec	None	None	G5	S2	2B.3	 © 2021 Scot Loring

Showing 1 to 19 of 19 entries

CONTACT US

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CONTRIBUTORS

The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Developed by
Rincon Consultants, Inc.

Log in

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Kirkwood (3912272))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3	SSC
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S3	
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S1S2	SSC
CTT61430CA	***Great Valley Valley Oak Riparian Forest*** Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
IIHYM24480	***Bombus crotchii*** Crotch bumble bee	None	Candidate Endangered	G3G4	S1S2	
PDCAR0L0V0	***Paronychia ahartii*** Ahart's paronychia	None	None	G3	S3	1B.1
PDEUP0D1P1	***Euphorbia ocellata ssp. rattanii*** Stony Creek spurge	None	None	G4T2?	S2?	1B.2
PDPLM0C0E1	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	None	None	G4T2	S2	1B.1

Record Count: 11

IPaC **U.S. Fish & Wildlife Service**

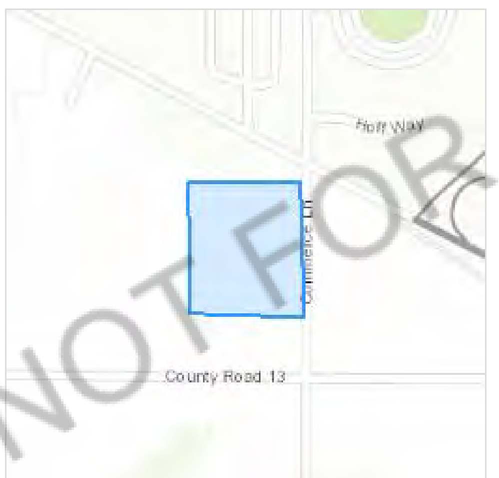
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Glenn County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS

Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/8246	Endangered

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/2246

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. http://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA http://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA http://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

Yellow-billed Magpie Pica nuttalli
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
http://ecos.fws.gov/ecp/species/9726

Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

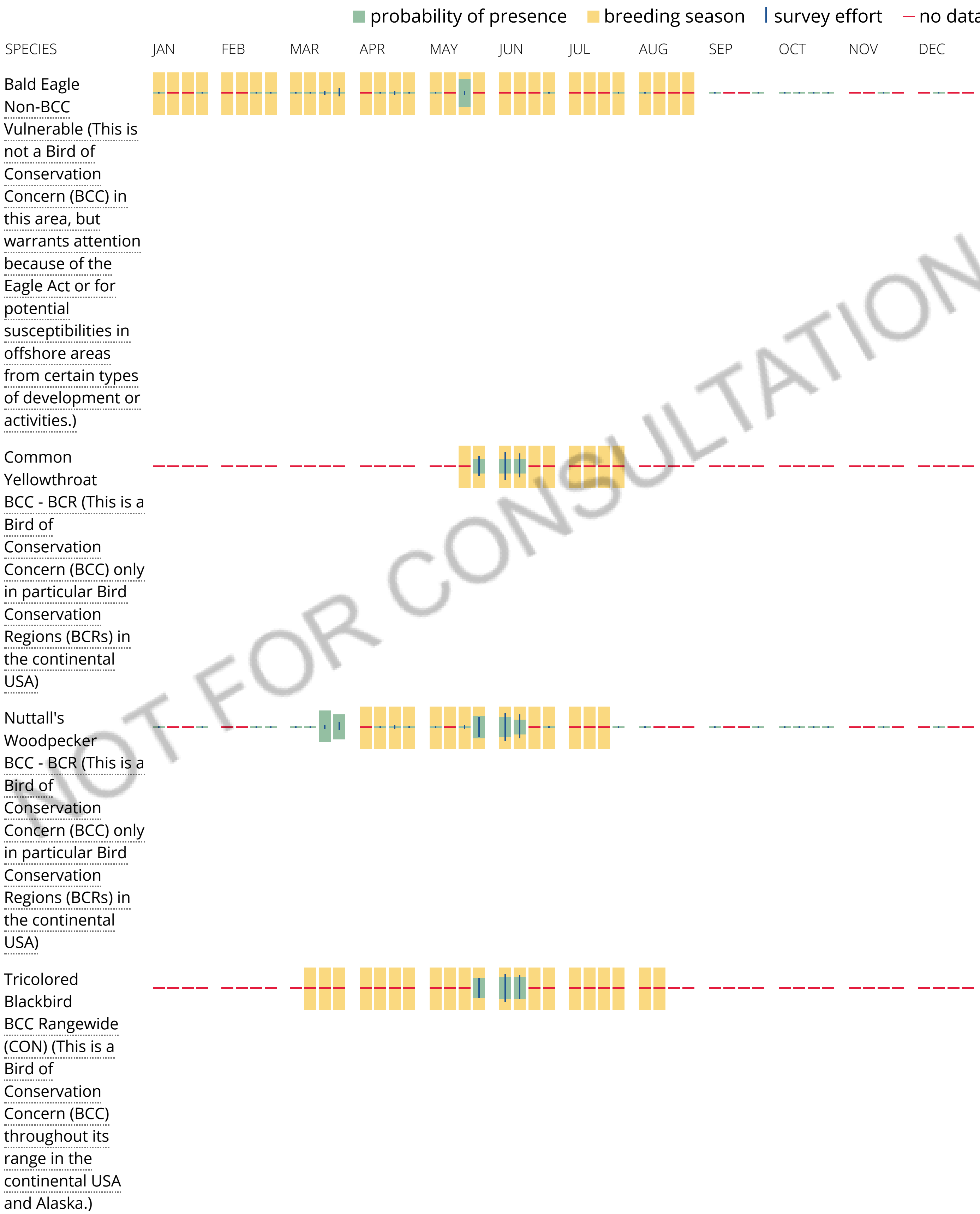
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

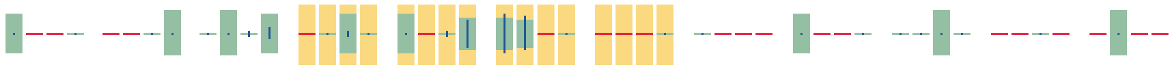
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NMFS Species List

Quad Name: Kirkwood

Quad Number: 39122-G2

ESA Anadromous Fish

CVSR Chinook Salmon ESU (T)

SRWR Chinook Salmon ESA (E)

CCV Steelhead DPS (T)

ESA Anadromous Fish Critical Habitat

CVSR Chinook Salmon Critical Habitat

CCV Steelhead Critical Habitat

Essential Fish Habitat

Chinook Salmon EFH

Accessed September 2021
(https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html)

ATTACHMENT B

Representative Site Photos

Photo 1. Northern Boundary, facing W, September 17, 2021

Photo 2. Fallow Crop Rows, facing S, September 17, 2021

Photo 3. Leveled Field, facing SE, September 17, 2021

Photo 4. Leveled Field and Fallow Crop Rows, facing NE, September 17, 2021

ATTACHMENT C

Soil Unit Descriptions

Glenn County, California

Czk—Cortina gravelly fine sandy loam, shallow

Map Unit Setting

National map unit symbol: hd7g
Elevation: 30 to 2,400 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Cortina and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cortina

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 15 inches: stratified very gravelly loamy sand to very gravelly loam
H3 - 15 to 60 inches: stratified very gravelly sand to very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalRare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 5 percent
Landform: Fans
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Glenn County, California
Survey Area Data: Version 16, Jun 1, 2020

Glenn County, California

Wg—Wyo loam, deep over gravel

Map Unit Setting

National map unit symbol: hdj8
Elevation: 130 to 980 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Wyo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wyo

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metavolcanics

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 42 inches: loam
H3 - 42 to 60 inches: sand and gravel, very gravelly sand
H3 - 42 to 60 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Orland

Percent of map unit: 10 percent
Hydric soil rating: No

Cortina

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Glenn County, California
Survey Area Data: Version 16, Jun 1, 2020

Glenn County, California

Wh—Wyo gravelly loam, moderately deep over gravel

Map Unit Setting

National map unit symbol: hdj9
Elevation: 300 to 2,500 feet
Mean annual precipitation: 22 to 23 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wyo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wyo

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metavolcanics

Typical profile

H1 - 0 to 11 inches: gravelly loam
H2 - 11 to 30 inches: gravelly loam
H3 - 30 to 60 inches: sand and gravel

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Orland

Percent of map unit: 10 percent
Hydric soil rating: No

Cortina

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Glenn County, California
Survey Area Data: Version 16, Jun 1, 2020

Attachment 4.6

Energy Consumption Calculations, ECORP Consulting, Inc.

Proposed Project
Total Construction-Related and Operational Gasoline Usage

Action	Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]	Conversion of Metric Tons to Kilograms[2]	Construction Equipment Emission Factor[2]
Project Construction	198	198,000	10.15
Total Gallons Consumed During Construction Year One (2022):			**19,507**

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Operations

Table 4. Average Miles per Gallon in Project Site County [3]

Area	Sub-Area	Cal. Year of Operations	Season	Veh_tech	EMFAC 2021 Category	Total Onroad Vehicle Gallons Consumed 2020	Total Onroad Vehicle Miles Traveled in 2020	Total Passenger Vehicle Miles per Gallon in 2020
Sub-Areas	Glenn County	2023	Annual	All Vehicles	All Vehicles	33,636,609	606,077,072	18.02

Sources:
[3]California Air Resource Board. 2021. EMFAC2021 Mobile Emissions Model.

Table 5. Total Gallons During Project Operations

Project Onroad Vehicle Daily Trips[4]	Estimated Miles per Trip[4]	Project Onroad Vehicle Daily Miles Traveled	Project Onroad Vehicle Daily Fuel Consumption	Project Onroad Vehicle Annual Fuel Consumption
4,703	7.36	34,617.32	1,921.22	**701,246**

Sources:
[4]CalEEMod 2020.4.0

Calculations

Fueling Center 5.51%
Trip Lengths per CalEEMod [in this case]:
9.5 miles = .8%
7.3 miles = 80.2%
7.5 miles = 19%

Weighted Average:
7.3556

Congregate Care2 31.46%
Trip Lengths per CalEEMod [in this case]:
10.8 miles = 40.2%
7.3 miles = 19.2%
7.5 miles = 40.6%

Weighted Average:
8.7882

General Office 5.27%
Trip Lengths per CalEEMod [in this case]:
9.5 miles = 33.0%
7.3 miles = 48.0%
7.3 miles = 19.0%

Weighted Average:
8.026

High Turnover Sitdown 27.13%
Trip Lengths per CalEEMod [in this case]:
9.5 miles = 8.5%
7.3 miles = 72.5%
7.3 miles = 19.0%

Weighted Average:
7.487

Junior College 0.21%
Trip Lengths per CalEEMod [in this case]:
9.5 miles = 6.4%
7.3 miles = 88.6%
7.3 miles = 5.0%

Weighted Average:
7.4408

Medical Office Building 2.26%
Trip Lengths per CalEEMod [in this case]:
9.5 miles = 29.6%
7.3 miles = 51.4%
7.3 miles = 19%

Weighted Average:
7.9512

Single Family Housing 28.26%
Trip Lengths per CalEEMod [in this case]:
10.8 miles = 40.2%
7.3 miles = 19.2%
7.5 miles = 40.6%

Weighted Average:
8.7882

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Total Weighted Average of Land Uses
8.303123

Noise Impact Assessment Maverik Fueling Center Project, ECORP Consulting, Inc.

Noise Impact Assessment

Maverik Fueling Center Project

Orland, California

Prepared For:

City of Orland
815 Fourth Street
Orland, California 95963

Prepared By:

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ENVIRONMENTAL CONSULTANTS
55 Hanover Lane, Suite A
Chico, California 95973

November 2021

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
City	City of Orland
CNEL	Community Noise Equivalent Level
County	Glenn County
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
ITE	Institute of Transportation Engineers
L_{eq}	Measure of ambient noise
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PPV	Peak particle velocity
Project	Maverik Fueling Station Project
RMS	Root mean square
WEAL	Western Electro-Acoustic Laboratory, Inc.

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Maverik Fueling Center Project (Project), which includes the construction of a convenience store and fast-food restaurant with drive thru, automobile gas fueling dispensers, truck diesel fueling location, RV wastewater dumping station and associated parking in the City of Orland (City), California. This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the City of Orland General Plan Noise Element, the Glenn County General Plan and Glenn County Municipal Code. The purpose of this report is to estimate Project-generated noise levels and to determine the level of impact the Project would have on the environment.

1.1 Project Location and Description

The Proposed Project is located in the City of Orland on a 5.56-acre site at the southwest corner of Newville Road and Commerce Lane. Unincorporated areas of Glenn County (County) surround the Project Site to the west and northwest. The Project Site is currently vacant and bound by residences to the north with Newville Road beyond, Commerce Lane to the east with the Pilot Travel Center beyond, undeveloped land to the south, and agricultural land to the west.

The Project proposes the development of a 9,084 square foot building containing a convenience store and fast-food restaurant with drive thru, seven automobile gas fueling dispensers with two fueling stations each, a separate truck diesel fueling location with six dispensers, canopies covering both fueling locations, 62 parking stalls, 2 short-term (30 minutes maximum) semi-truck parking stalls, an RV wastewater dumping station, and both below- and above-ground fuel storage tanks. The Project Site would be accessible from two driveways on Commerce Lane.

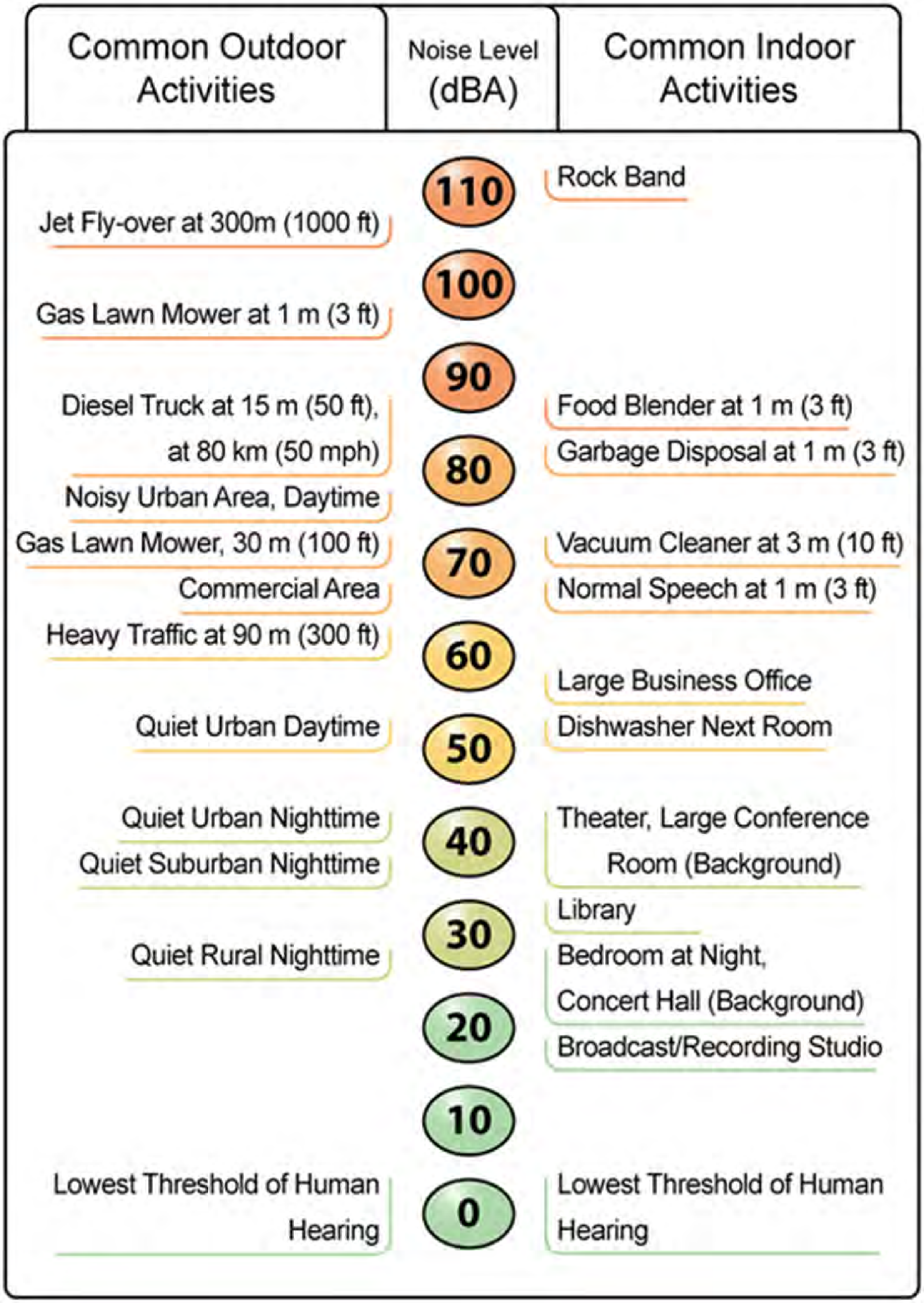
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 2-1.



Source: California Department of Transportation (Caltrans) 2020a

Figure 2-1. Common Noise Levels

Maverik Fueling Center Project

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the “line of sight” between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined in Table 2-1.

Table 2-1. Common Acoustical Descriptors	
Descriptor	**Definition**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average Leq with a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a 5 dBA “weighting” during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

2.1.5.1 Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

2.1.5.2 Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2020b

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The nearest existing noise-sensitive land uses to the Project Site are residential properties adjacent to the northern, southwestern, and northwestern Project Site boundary with the closest being approximately 50 feet distant.

3.2 Existing Ambient Noise Environment

The most common and significant source of noise in the City of Orland is mobile noise generated by transportation-related sources. Other sources of noise are the various land uses (i.e., industrial facilities, agricultural uses, residential and commercial) that generate stationary-source noise. The Project Site is bound by residences and Newville Road to the north, Commerce Lane and the Pilot Travel Center truck stop to the east, undeveloped land to the south, and agricultural land to the west. As shown in Table 3-1 below, the ambient recorded noise levels range from 52.4 to 66.7 dBA L_{eq} near the Project Site.

3.2.1 Existing Ambient Noise Measurements

The Project Site is currently undeveloped land surrounded by a variety of land uses. In order to quantify existing ambient noise levels in the Project Area, ECORP Consulting, Inc. conducted a 24-hour noise measurement starting on September 16, 2021 and extending into September 17. This 24-hour noise measurement site is representative of typical existing noise exposure on the Project site during a typical 24-hour day (see Attachment A). Additionally, ECORP conducted three short-term noise measurements on the afternoon of September 17, 2021. These short-term noise measurements are representative of typical existing noise exposure within and immediately adjacent to the Project Site during the daytime (see Attachment A). The 15-minute measurements were taken between 2:15 p.m. and 3:42 p.m. The average noise levels and sources of noise measured at each location are listed in Table 3-1.

Table 3-1. Existing (Baseline) Noise Measurements						
24 Hour Noise Measurement						
Location Number	**Location**	**L_{dn}**	**dBA L_{eq}**	**L_{min} dBA**	**L_{max} dBA**	**Time**
1	Approximately 295 feet west of the Commerce Lane/County Road 13 intersection	**59.8**	52.4	43.1	79.3	2:27 p.m. (Sept 16) – 2:27 p.m. (Sept 17)
15 Minute Noise Measurements						
Location Number	**Location**		**L_{eq} dBA**	**L_{min} dBA**	**L_{max} dBA**	**Time**
2	Address 6381 Newville Road		**66.7**	50.5	77.5	2:15 p.m.– 3:07 p.m.
3	40 feet west of address 6319 Newville Road and across from address 6371		**66.5**	49.3	102.9	3:10 p.m.-3:25 p.m.
4	35 feet north of the Hoft Way/ Road HH Intersection		**58.1**	54.2	70.1	3:27 p.m.-3:42 p.m.

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Notes: L_{dn} is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime.

L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. L_{min} is the minimum noise level during the measurement period and L_{max} is the maximum noise level during the measurement period.

As shown in Table 3-1, the ambient recorded noise level during the span of the 24-hour noise measurement was 59.8 dBA L_{dn}. The ambient recorded noise levels range from 52.4 to 66.7 dBA L_{eq} over the course of the three short-term noise measurements taken in the Project vicinity. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on area roadways.

3.3 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Project's Traffic Impact Analysis (KD Anderson & Associates 2021). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 3-2. Vicinity roadways span two jurisdictions, both the City of Orland and unincorporated County of Glenn, which are noted in Table 3-2.

Table 3-2. Existing (Baseline) Traffic Noise Levels		
Roadway Segment	**Surrounding Uses**	**L_{dn} at 100 feet from Centerline of Roadway**
Commerce Lane		
South of County Road 13	Residential and Undeveloped/Farmland (City of Orland & Unincorporated Glenn County)	**47.1**
North of Newville Road	Residential (City of Orland)	**50.7**
County Road 13		
West of Commerce Lane	Residential and undeveloped/farmland (Unincorporated Glenn County)	**30.9**
Newville Road		
West of Commerce Lane	Residential (City of Orland & Unincorporated Glenn County)	**55.6**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by KD Anderson & Associates (2021). Refer to Attachment B for traffic noise modeling assumptions and results.
Note: A total of 8 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 42.0 to 66.8 dBA L_{dn}. L_{dn} is 24-hour average noise level with a 10 dBA "weighting" during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. It should be noted that the modeled noise levels depicted in Table 3-2 may differ from measured levels in Table 3-1 because the measurements represent noise levels at different locations around the Project Site and three of the four measurements are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in L_{dn}).

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an eight-hour work shift (29 Code of Regulations 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

4.1.2 U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, USEPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

4.1.3 National Institute of Occupational Safety and Health

A division of the US Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

4.2 State

4.2.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor’s Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community’s sensitivity to noise, and the community’s assessment of the relative importance of noise pollution.

4.2.2 State Office of Planning and Research Noise Element Guidelines

The State OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.2.3 California Department of Transportation

In 2020, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2020b). The manual provides general guidance on vibration issues associated with the construction and operation of projects concerning human perception and structural damage. Table 2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

4.3 Local

4.3.1 City of Orland General Plan

The Noise Section of the 2008-2023 City of Orland General Plan addresses noise-related issues within the community. Programs include protection of noise sensitive uses from excessive noise levels, as well as measures to protect noise generators from encroachment by noise sensitive uses. The following policies are applicable to the Proposed Project:

Goal 6.1: *Protect the citizens of Orland from the harmful effects of exposure to excessive noise. Additionally, protect the existing noise-sensitive land uses from new uses that would generate noise levels that are incompatible with those uses and discourage new noise-sensitive land uses from being developed near sources of high noise levels.*

Policy 6.1.A: The interior and exterior noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources in the City of Orland are shown in [Table 4-1, below].

Table 4-1. Noise Standards for New Uses Affected by Traffic and Railroad Noise			
New Land Use	**Outdoor Activity Areas L_{dn}**	**Interior L_{dn}/ Peak Hour L_{eq}**	**Notes**
Residential	60 - 65	45	2, 3, 4
Transient Lodging	65	45	5
Hospitals, Nursing Homes	60	45	6
Theatres, Auditoriums, Music Halls	--	35	
Churches, Meeting Halls, Schools, Libraries, etc.	60	40	
Office Buildings	65	45	7
Commercial Buildings	65	50	7
Playgrounds, Parks	70	--	
Industry	65	50	7

Source: City of Orland 2010
Notes:
1. For traffic noise within the City, L_{dn} and peak-hour L_{eq} values are estimated to be approximately similar. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in closed positions.
2. Outdoor activity areas for single-family residential uses are defined as back yards. For large parcels or residences with no clearly identified outdoor activity area, the standard shall be applicable within a 100-foot radius of the residence.
3. For multi-family residential uses, the exterior noise level standard shall be applied at the common outdoor recreation area, such as at pools, play areas, or tennis courts.
4. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using a practical application of the best available noise-reduction measures, an exterior noise level of up to 65 dB L_{dn} may be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table.
5. Outdoor activity areas of transient lodging facilities include swimming pools and picnic areas.
6. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
7. Only the exterior spaces of the uses designated for employee or customer relaxation have any degree of sensitivity to noise.

Policy 6.1.B: Where the noise level standards for [Table 4-1] are predicted to be exceeded at new uses proposed within the City of Orland which are affected by traffic or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with [Table 4-1] standards.

Policy 6.1.C: Assessment of traffic noise impacts within the City of Orland shall be based on projections of traffic volumes commensurate with cumulative buildout of the City of Orland.

Policy 6.1.E: If an acoustical analysis is required by the City of Orland to assess compliance with the City's Noise Element standards, it shall be prepared in accordance with Table 4-2, Requirements for Acoustical Analyses Prepared in Orland.

Table 4-2. Requirements for Acoustical Analyses Prepared in Orland

An acoustical analysis prepared pursuant to the Noise Element shall:
1. Be the responsibility of the applicant.
2. Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.
3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
4. Estimate existing and projected (cumulative City buildout) noise levels in terms of the Standards of Tables 5-1 and 5-2 and compare those levels to the adopted policies of the Noise Element.
5. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms evaluating possible sleep disturbance.
6. Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented.
7. Describe the post-project assessment program which could be used to evaluate the success of mitigation measures.

Source: City of Orland 2010

Policy 6.1.F: The interior and exterior noise level standards for noise-sensitive areas of new uses affected by non-transportation noise sources in the City of Orland are shown by [Table 4-3], below.

Table 4-3. Noise Standards for New Uses Affected by Non-Transportation Noise				
New Land Use	**Outdoor Activity Areas L_{eq}**		**Interior L_{eq}/ Peak Hour L_{eq}**	
	Daytime	**Nighttime**	**Day and Night**	**Notes**
Residential	50	45	35	1, 2, 7
Transient Lodging	55	--	40	3
Hospitals, Nursing Homes	50	45	35	4
Theatres, Auditoriums, Music Halls	--	--	35	
Churches, Meeting Halls, Schools, Libraries, etc.	55	--	40	
Office Buildings	55	--	45	5, 6
Commercial Buildings	55	--	45	5, 6
Playgrounds, Parks	65	--	--	6
Industry	65	65	50	5

Source: City of Orland 2010
Notes:
1. Outdoor activity areas for single-family residential uses are defined as back yards. For large parcels or residences with no clearly identified outdoor activity area, the standard shall be applicable within a 100-foot radius of the residence.
2. For multi-family residential uses, the exterior noise level standard shall be applied at the common outdoor recreation area, such as at pools, play areas, or tennis courts. Where such areas are not provided, the standards shall be applied at individual patios and balconies of the development.
3. Outdoor activity areas of transient lodging facilities include swimming pool and picnic areas, which are not commonly used during nighttime hours.
4. Hospitals are often noise-generating uses. The exterior noise levels standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5. Only the exterior spaces of those uses designated for employee or customer relaxation have any degree of sensitivity to noise.
6. The outdoor activity areas of office, commercial, and park uses are not typically utilized during nighttime hours.
7. It may not be possible to achieve compliance with this standard at residential uses located immediately adjacent to loading dock areas of commercial uses while trucks are unloading. The daytime and nighttime noise level standards applicable to loading docks shall be 55 and 50

Program 6.1.F.1: The [Table 4-3] standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds.

Program 6.1.F.2: If the existing ambient noise level exceeds the standards of [Table 4-3], then the noise level standards shall be increased at 5 dB increments to encompass the ambient noise.

Policy 6.1.G: The [Table 4-3] standards are applied to both new noise-sensitive land uses and new noise-generating uses, with the responsibility for noise mitigation placed on the new use.

Policy 6.1.H: Where the noise level standards of [Table 4-3] are predicted to be exceeded at new uses proposed within the City of Orland which are affected by or include non-transportation noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with [Table 4-3] standards.

Policy 6.1.I: Noise associated with construction activities shall be exempt from the noise standards cited in [Table 4-3].

Policy 6.1.J: Construction activities shall be limited to the hours of 7 a.m. to 5 p.m. unless an exemption is received from the City to cover special circumstances.

Policy 6.1.K: All internal combustion engines used in conjunction with construction activities shall be muffled according to the equipment manufacturer's requirement.

4.3.2 Glenn County General Plan and County Code

While the Project Site is located within the incorporated city limits of Orland, it is also located adjacent to unincorporated lands administered by the County of Glenn. Therefore, the Project would affect land uses in the unincorporated County of Glenn. The Glenn County General Plan Public Safety Element contains policy provisions intended to protect County residents from the harmful and annoying effects of exposure to excessive noise. For instance, new sources of transportation noise are limited to propagating noise levels of 60 dBA L_{dn}/CNEL at unincorporated County residences and all new stationary sources of noise are limited to producing daytime noise levels of 50 dBA L_{eq} at any noise sensitive receptor. The County regulates construction noise in its County Code. Chapter 15.560.100 of the County Code exempts construction noise from all noise standards provided that construction is limited between the hours of 7:00 a.m. and 7:00 p.m.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce:

1) 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.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) 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.

For purposes of this analysis , the City or County noise standards were used, where applicable, for evaluation of Project-related noise impacts and are discussed further below.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise-prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with trip generation rates provided by KD Anderson & Associates, Inc. (2021). Onsite stationary source noise levels have been calculated with the SoundPLAN 3D noise model, which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings, and barriers. This model predicts noise on a worst-case scenario basis where all noise sources are producing noise at full capacity at the exact same time.

5.3 Impact Analysis

5.3.1 Project Construction Noise

5.3.1.1 Would the Project Result in Short-Term Construction-Generated Noise in Excess of Standards?

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, building construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

Nearby noise-sensitive land uses consist of residences adjacent to the northern, southwestern, and northwestern Project Site boundary with the closest being approximately 50 feet distant. The residences located on the northern Project Site boundary are located within the City limits while the remaining nearby noise-sensitive land uses are located within the unincorporated County. The City and County both limit the time that construction can take place but do not promulgate numeric thresholds pertaining to the noise associated with construction. Specifically, Policy 6.1.I of Orland General Plan states that noise associated with construction activities shall be exempt from the City's noise standards. Further, Policy 6.1.J states that construction activities shall be limited to the hours of 7:00 a.m. to 5:00 p.m. unless an exemption is received from the City to cover special circumstances. Similarly, Chapter 15.560.100 of Glenn County's Municipal Code exempts construction noise as long as it takes place between 7:00 a.m. and 7:00 p.m. Due to the fact that construction of the Proposed Project will be occurring in the City of Orland and the City's limit on construction timing is more stringent, the City's construction noise standard is the most applicable to the Project. It is typical to regulate construction noise with time limits as opposed to numeric noise thresholds since construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Furthermore, the City of Orland is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point.

<u>Onsite Construction Noise</u>

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptor in the Project vicinity in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the

Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by NIOSH. A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

The anticipated short-term construction noise levels generated for the necessary equipment were calculated using the Roadway Noise Construction Model for the site preparation, grading, building construction, vapor recovery tank installation, paving and painting anticipated for the Proposed Project. It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the Project Site and at various distances from sensitive receptors. Therefore, this analysis employs FTA guidance for calculating construction noise, which recommends measuring construction noise produced by all construction equipment operating simultaneously from the center of the Project (FTA 2018), which in this case is approximately 250 feet distant from the nearest sensitive receptor. The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 5-1.

Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptor- Project Site			
Equipment	**Estimated Exterior Construction Noise Level at Nearest Residences**	**Construction Noise Standards (dBA L_{eq})**	**Exceeds Standards?**
Site Preparation			
Tractors/Loaders/Backhoes (2)	66.0 (each)	*85*	**No**
Combined Site Preparation Equipment	**69.1**	*85*	**No**
Grading			
Excavators (1)	62.8	*85*	**No**
Graders (2)	67.0 (each)	*85*	**No**
Combined Grading Equipment	**70.8**	*85*	**No**
Building Construction			
Tractors/Loaders/Backhoes (2)	66.0 (each)	*85*	**No**
Rough Terrain Forklifts (2)	65.4 (each)	*85*	**No**
Other Construction Equipment (4)	68.0 (each)	*85*	**No**
Combined Building Construction Equipment	**76.1**	*85*	**No**
Vapor Recovery Instillation			
Crane (1)	58.6	*85*	**No**
Other Construction Equipment (1)	68.0	*85*	**No**
Tractors/Loaders/Backhoes (3)	66.0 (each)	*85*	**No**
Excavators (1)	62.8	*85*	**No**
Trenchers (1)	58.2	*85*	**No**
Combined Vapor Recovery Instillation Equipment	**73.4**	*85*	**No**
Paving			
Pavers (1)	60.2	*85*	**No**
Paving Equipment (2)	68.5 (each)	*85*	**No**
Surfacing Equipment (2)	68.5 (each)	*85*	**No**
Tractors/Loaders/Backhoes (2)	66.0 (each)	*85*	**No**
Combined Paving Equipment	**75.8**	*85*	**No**

Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptor- Project Site			
Equipment	**Estimated Exterior Construction Noise Level at Nearest Residences**	**Construction Noise Standards (dBA L_{eq})**	**Exceeds Standards?**
Painting			
Other Painting Equipment (2)	68.0 (each)	*85*	**No**
Combined Painting Equipment	**71.0**	*85*	**No**

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment C for Model Data Outputs.

Notes: Construction equipment used during construction derived from the Project applicant. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project Site (FTA 2018), which is 250 feet from the nearest residence.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 5-1, during construction activities no individual or cumulative piece of construction equipment would exceed the NIOSH threshold of 85 dBA L_{eq} at the nearest potential receptors to onsite construction and therefore no health effects from construction noise would occur. It is noted that construction noise was modeled on a worst-case basis. It is very unlikely that all pieces of construction equipment would be operating at the same time for the various phases of Project construction as well as at the point closest to residences.

Offsite Construction Worker Traffic Noise

Project construction would result in minimal additional traffic on adjacent roadways over the time period that construction occurs. The worker trips would largely occur within two distinct segments of the day, the morning and afternoon, while the haul trips would occur intermittently throughout the workday. According to the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The majority of this construction-related traffic trips would access the Project Site via Newville Road to Commerce Lane. Per the Traffic Impact Analysis prepared by KD Anderson & Associates, Inc. (2021), the roadway segment of Commerce Lane that traverses the Project Site has an average daily traffic count of 1,800 vehicle trips per day. Project construction would not generate 1,800 daily trips and therefore the Project would not result in a doubling of traffic on area roadways and the contribution to existing traffic noise during Project construction would not be perceptible. Additionally, it is noted that construction is temporary, and these trips would cease upon completion of the Project.

5.3.2 Project Operational Noise

5.3.2.1 Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of County or City Standards During Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest existing noise-sensitive land uses to the Project Site are residential properties adjacent to the northern, southwestern, and northwestern Project Site boundary with the closest being approximately 50 feet distant.

Operational noise sources associated with the Proposed Project include mobile and stationary (i.e., truck loading and idling, internal circulation, drive thru activity, gas station activity and traffic) sources.

Operational Offsite Traffic Noise

Future traffic noise levels through the Project vicinity were modeled based on traffic volumes identified by KD Anderson & Associates, Inc (2021) to determine the noise levels along Project vicinity roadways. Table 5-2 shows the calculated offsite roadway noise levels under existing traffic levels compared to future traffic levels resulting from buildout of the Project. The calculated noise levels as a result of the Project at affected sensitive land uses are compared to the maximum allowable noise exposure for transportation noise sources as identified in the Glenn County General Plan (60 dBA L_{dn} at residences) or the City of Orland Noise Standards (60 – 65 dBA L_{dn} at residences), as applicable. For roadways that span both jurisdictions, the most stringent noise standard (60 dBA L_{dn} at residences) was applied.

Table 5-2. Existing Plus Project Conditions Predicted Traffic Noise Levels					
Roadway Segment	Surrounding Uses	L_{dn} 100 feet from Centerline of Roadway		Standard	Exceed Standard?
		Existing Conditions	Existing + Project Conditions		
Commerce Lane					
South of County Road 13	Residential and Undeveloped/Farmland (City of Orland & Unincorporated Glenn County)	47.1	**47.9**	*60 dBA L_{dn}*	**No**
North of Newville Road	Residential (City of Orland)	50.7	**51.1**	*60 – 65 dBA L_{dn}*	**No**
County Road 13					
West of Commerce Lane	Residential and undeveloped/farmland (Unincorporated Glenn County)	30.9	**31.3**	*60 dBA L_{dn}*	**No**
Newville Road					
West of Commerce Lane	Residential (City of Orland & Unincorporated Glenn County)	55.6	**56.0**	*60 dBA L_{dn}*	**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate and fleet mix identified by KD Anderson & Associates, Inc. 2021. Refer to Attachment B for traffic noise modeling assumptions and results.

Notes: A total of 8 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis. Interstate 5 traffic counts were not analyzed as a large majority of the trips generated by the Project are considered pass-by and would already be traversing the interstate. Additionally, due to the high number of vehicles on Interstate 5 that currently traverse the Project Area, there would be no noise impact as a result of minimal increased traffic due to the Project.

As show in Table 5-2, predicted increases in traffic noise levels associated with the Project would be less than the thresholds for the City of Orland and County of Glenn. Additionally, all roadways would experience noise level increases of less than a 3 dBA as a result of Project traffic. As previously stated, a 3-dBA increase is considered just-perceivable to the human ear. Thus, the increase in traffic noise as a result of Project traffic would be largely unnoticed on area roadways.

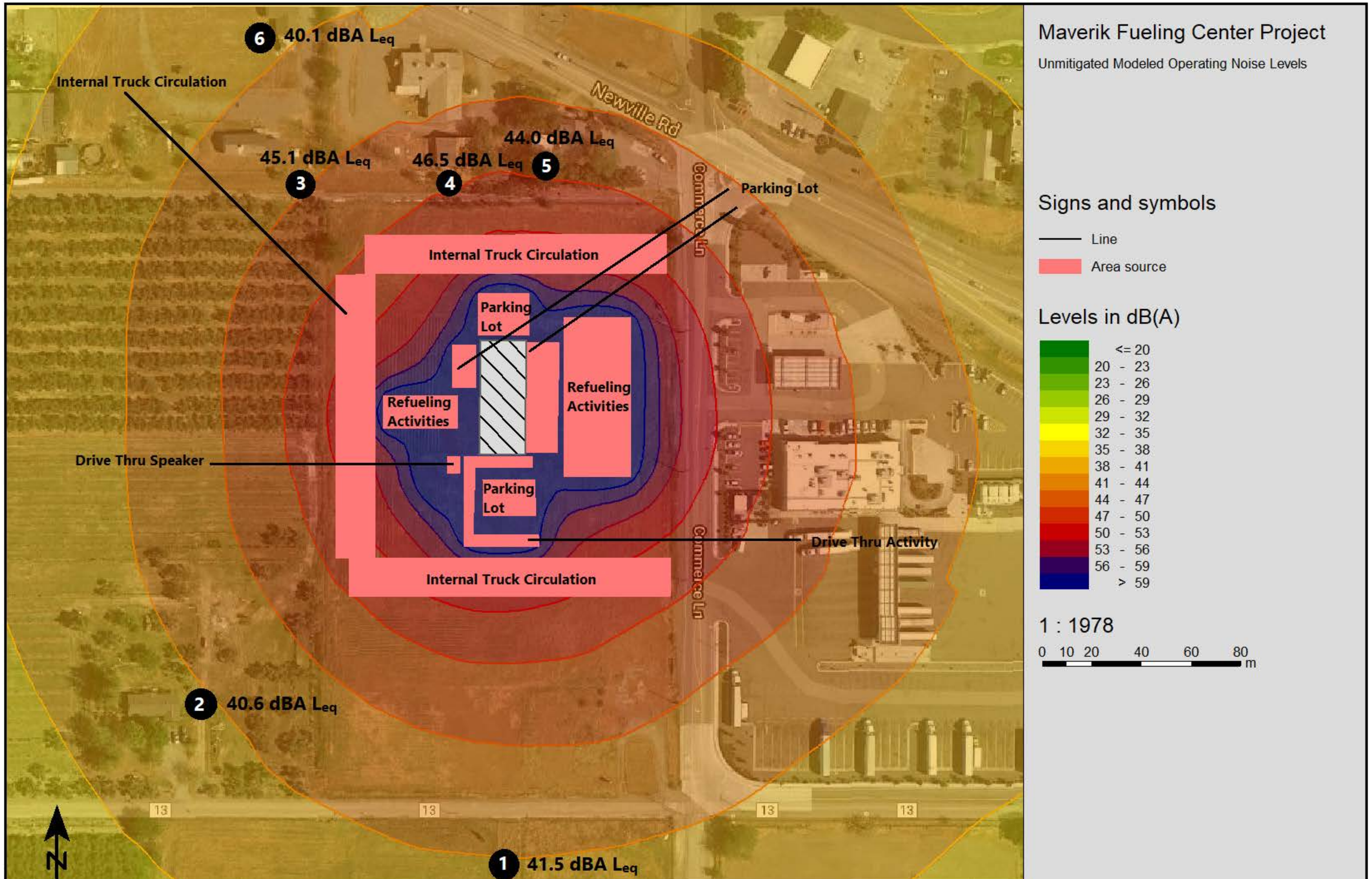
Operational Onsite Stationary Noise

The main stationary operational noise associated with the Project would be activities occurring on the Project Site. Such activity would include gas station operations (i.e., refueling, internal circulation, vehicle doors opening and closing, stereos, etc.), activity occurring at the convenience store and fast-food restaurant such as truck deliveries and parking lot activity, noise associated with the drive thru such as idling cars and the drive thru speaker, and other miscellaneous onsite noise producing activity. On-site Project operations have been calculated using the SoundPLAN 3D noise model. The results of this model can be found in Attachment D. Table 5-3 shows the predicted Project noise levels at six locations in the Project vicinity, as predicted by SoundPLAN. Two of these locations (Site Locations 1 & 6) correspond with the locations where existing baseline noise measurements were taken (see Table 3-1), while the additional four locations are receptors in close proximity to the Project Site, which will be affected by Project operations. Additionally, a noise contour graphic (see Figure 5-1) has been prepared to provide a visual depiction of the predicted noise levels in the Project vicinity from Project operations.

Table 5-3. Unmitigated Modeled Operational Noise Levels

Site Location	Location	Modeled Operational Noise Attributed to Project (L_{eq} dBA)	County/City Standard Day/Night (L_{eq} dBA)	Exceed Standard?
1	Approximately 295 feet west of the Commerce Lane/County Road 13 intersection	**41.5**	*50/45*	**No/No**
2	Residence southwest of Project Site	**40.6**	*50/45*	**No/No**
3	Residence northwest of Project Site	**45.1**	*50/45*	**No/Yes**
4	Residence North of Project Site	**46.5**	*50/45*	**No/Yes**
5	Moose Lodge North of Project Site	**44.0**	*55/NA*	**No/No**
6	40 feet west of address 6319 Newville Road and across from address 6371	**40.1**	*50/45*	**No/No**

Source: Stationary source noise levels were modeled by ECORP Consulting using SoundPLAN 3D noise model. Refer to Attachment D for noise modeling assumptions and results.



Map Date: 11/2/2021
Photo (or Base) Source: SoundPLAN 5.1

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Figure 5-1. Unmitigated Modeled Operational Noise Levels

2021-186

As shown in Table 5-3, predicted Project noise levels would range from 40.1 to 46.5 dBA L_{eq} during Project operations. The loudest noise levels at a sensitive noise receptor, Site Location 5 located in the City of Orland, has the potential to be as high as 46.5 dBA L_{eq} during some Project activities. It is noted that the modeled noise levels identified are a worst-case scenario. Not all events taking place on the Project Site would generate as much noise as predicted. The City of Orland and Glenn County's Noise Level Standards for non-transportation related uses are 50 dBA L_{eq} during the daytime activities (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime activities (10:00 p.m. to 7:00 a.m.). Per information provided by the Project applicant, the facilities on the Project Site (gas station, convince store and fast-food restaurant with drive thru) are anticipated to operate 24-hours a day. Thus, noise as a result of Project operations would exceed the nighttime noise standard for residential uses at Site Location 3, located in the City of Orland, and Site Location 4, located in Glenn County.

As such, the construction of a sound wall on the northern and western Project Site boundary, presented as Mitigation Measure **NOI-1**, is necessary to reduce noise as a result of Project operations, specifically for nighttime noise standards. Mitigation Measure **NOI-1** is described in detail below:

<u>Mitigation Measure</u>

NOI-1: The Project improvement and building plans shall include the following requirements for operational activities:

The required sound wall shall span the northern and western Project Site boundary and must be at least 6-feet in height in order to break the "line of sight" between the Project Site and adjacent residents. The wall shall be constructed of CMU block, mortared masonry, stucco, gypsum board, or material of similar density, use or comparable acoustic ratings. All walls shall be sealed airtight, free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces.

Timing/Implementation: Prior to the issuance of Occupancy Permits

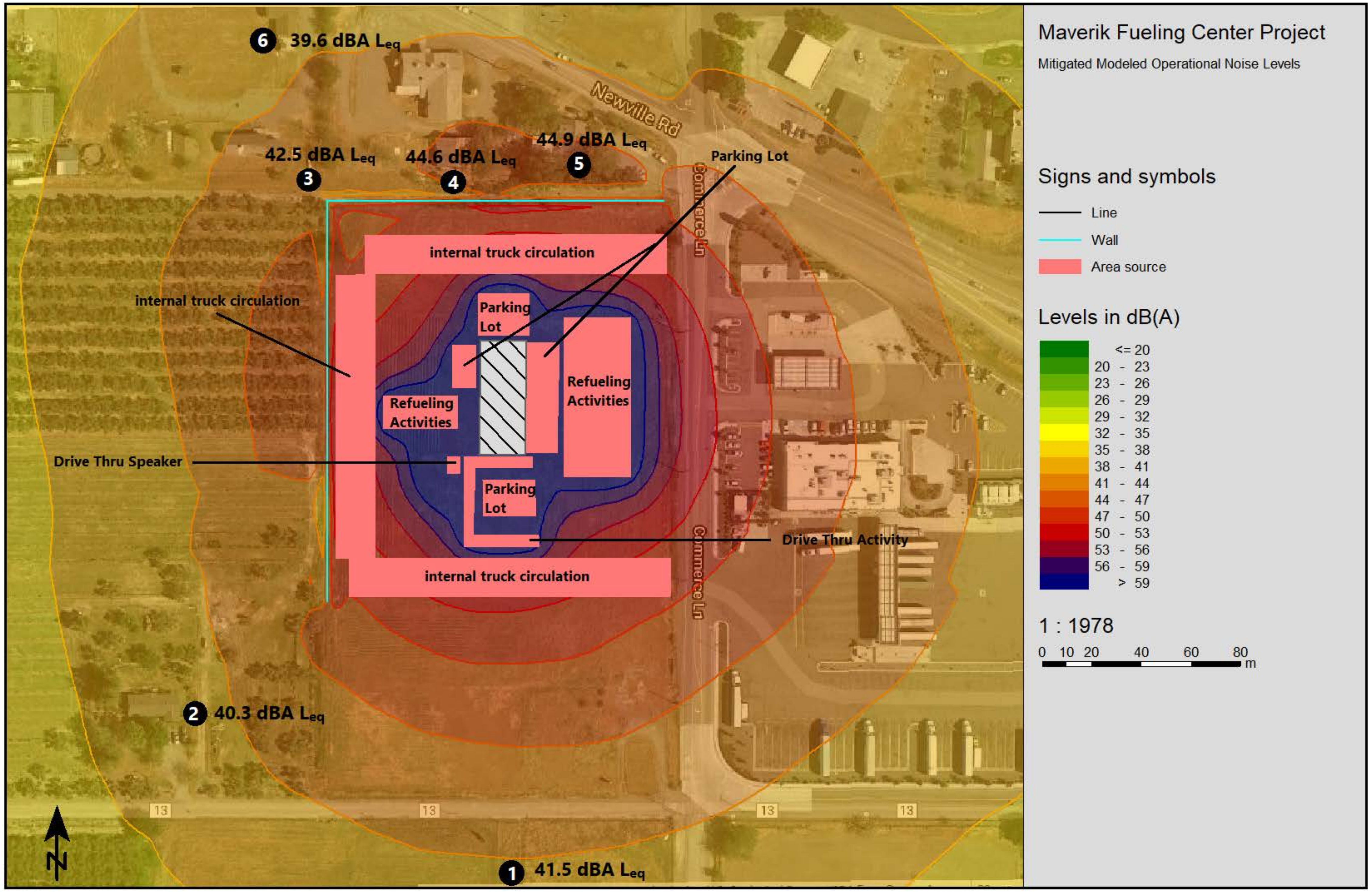
Enforcement/Monitoring: City of Orland Planning Department

Table 5-4 shows the predicted Project mitigated noise levels at all six locations listed in Table 5-3 with the construction of a 6-foot sound wall encompassing the northern and western Project Site boundary. Additionally, a noise contour graphic (see Figure 5-2) has been prepared to provide a visual depiction of the predicted noise levels in the Project vicinity from Project operations with Mitigation Measure **NOI-1** imposed.

Table 5-4. Mitigated Modeled Operational Noise Levels				
Site Location	**Location (Jurisdiction Noise Standard)**	**Mitigated Modeled Operational Noise Attributed to Project (L_{eq} dBA)**	**County/City Standard Day/Night (L_{eq} dBA)**	**Exceed Standard?**
1	Approximately 295 feet west of the Commerce Lane/County Road 13 intersection	**41.5**	*50/45*	**No/No**
2	Residence southwest of Project Site	**40.3**	*50/45*	**No/No**
3	Residence northwest of Project Site	**42.5**	*50/45*	**No/No**
4	Residence North of Project Site	**44.6**	*50/45*	**No/No**
5	Moose Lodge North of Project Site	**44.9**	*55/n/a*	**No/No**
6	40 feet west of address 6319 Newville Road and across from address 6371	**39.6**	*50/45*	**No/No**

Source: Stationary source noise levels were modeled by ECORP Consulting using SoundPLAN 3D noise model. Refer to Attachment D for noise modeling assumptions and results.

As shown in Table 5-3, with the implementation of Mitigation Measure **NOI-1**, noise as a result of Project operations would be below the City and County daytime and nighttime noise standards.



Map Date: 211/2/2021
Photo (or Base) Source: SoundPLAN 5.1

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Figure 5-2. Mitigated Modeled Operational Noise Levels

2021-186

5.3.3 Project Groundborne Vibration

5.3.3.1 Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment at 25 feet distant are summarized in Table 5-5.

Table 5-5. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Hoe Ram	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: FTA 2018; Caltrans 2020b

The City does not regulate vibrations associated with construction. The County Code, Section 15.560.130, states that vibration associated with construction are exempt from the County's standards. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.2 inches per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Consistent with FTA recommendations for calculating vibration generated from construction equipment, construction vibration was measured from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site are residences located approximately 250 feet west of the Project Site center.

Based on the representative vibration levels presented for various construction equipment types in Table 5-5 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential Project construction vibration levels. The FTA provides the following equation:

$$[PPVequip = PPVref \times (25/D)^{1.5}].$$

Table 5-6 presents the expected Project related vibration levels at a distance of 250 feet.

Table 5-6. Onsite Construction Vibration Levels at 250 Feet							
Receiver PPV Levels (in/sec)[1]					**Peak Vibration**	**Threshold**	**Exceed Threshold**
Large Bulldozer, Caisson Drilling, & Hoe Ram	**Loaded Trucks**	**Jackhammer**	**Small Bulldozer**	**Vibratory Roller**			
0.00281	0.00240	0.00110	0.00009	0.00664	**0.00664**	0.2	**No**

Notes: [1]Based on the Vibration Source Levels of Construction Equipment included on Table 5-3 (FTA 2018). Distance to the nearest structure of concern is approximately 250 feet measured from Project Site center.

As shown in Table 5-6, vibration as a result of onsite construction activities on the Project Site would not exceed 0.2 PPV at the nearest structure. Thus, onsite Project construction would not exceed the recommended threshold.

5.3.3.2 Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any stationary equipment that would result in excessive vibration levels. While the Project may accommodate heavy-duty trucks, these vehicles can only generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances. Therefore, the Project would result in negligible groundborne vibration impacts during operations.

5.3.4 Excess Airport Noise

5.3.4.1 Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?

The Project Site is located approximately 3.69 miles southeast of the Haigh Field Airport. According to Figure 6-1, *Orland Haigh Field Airport Noise Contour Lines*, of the City's General Plan, the Project Site is located outside of the 55 CNEL Noise Contour. Thus, the Proposed Project would not expose people working on the Project Site to excess airport noise levels.

5.3.5 Cumulative Noise

5.3.5.1 Would the Project Contribute to Cumulatively Considerable Noise During Construction?

Construction activities associated with the Proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the Proposed Project was determined to be less than significant following compliance with NIOSH noise standards. Cumulative development in the vicinity of the Project Site could result in elevated construction noise levels at sensitive receptors in the Project Area. However, each project would be required to comply with the applicable noise limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

5.3.5.2 Would the Project Contribute to Cumulatively Considerable Noise from Traffic?

Cumulative traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise-sensitive land uses) were modeled based on the traffic volumes identified by KD Anderson & Associates (2021) to determine the noise levels along Project vicinity roadways. Table 5-7 shows the calculated offsite roadway noise levels under cumulative conditions without the Project (Cumulative No Project) compared to cumulative conditions plus future buildout of the Project (Cumulative Plus Project). The calculated noise levels as a result of Cumulative Plus Project conditions at affected sensitive land uses are compared to the noise standards promulgated in the Glenn County General Plan (60 dBA L_{dn} at residences) and City of Orland (60 – 65 dBA L_{dn} at residences), where applicable. For roadways that span both jurisdictions, the most stringent noise standard (60 dBA L_{dn} at residences) was applied.

Table 5-7. Cumulative Plus Project Conditions Predicted Traffic Noise Levels					
Roadway Segment	**Surrounding Uses**	**L_{dn} 100 feet from Centerline of Roadway**		**Standard**	**Exceed Standard?**
		Cumulative No Project	**Cumulative Plus Project**		
Commerce Lane					
South of County Road 13	Residential and Undeveloped/Farmland (City of Orland & Unincorporated Glenn County)	52.5	**52.6**	*60 dBA L_{dn}*	**No**
North of Newville Road	Residential (City of Orland)	52.7	**52.7**	*60 – 65 dBA L_{dn}*	**No**
County Road 13					
West of Commerce Lane	Residential and undeveloped/farmland (Unincorporated Glenn County)	44.9	**44.9**	*60 dBA L_{dn}*	**No**
Newville Road					
West of Commerce Lane	Residential (City of Orland & Unincorporated Glenn County)	55.7	**55.8**	*60 dBA L_{dn}*	**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate and fleet mix identified by KD Anderson & Associates, Inc. 2021. Refer to Attachment B for traffic noise modeling assumptions and results.

Notes: A total of 8 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown in Table 5-7, no roadway segment would exceed the applicable County or City noise standard.

5.3.5.3 Cumulative Stationary Source Impacts

Long-term stationary noise sources associated with the Project, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and related cumulative projects together could result in higher noise levels than considered separately. As previously described, noise from onsite noise sources associated with the Proposed Project was found to fall below the daytime and nighttime City and County noise standards with implementation of Mitigation Measure **NOI-1**. Therefore, the Project would not contribute to cumulative impacts during operations.

6.0 REFERENCES

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LIST OF ATTACHMENTS

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

Site Number: 1 [24-Hour Measurement]			
Recorded By: Seth Myers			
Job Number: 2021-186			
Date: September 16 – 17, 2021			
Time: 2:27 p.m. (Sept 16) – 2:27 p.m. (Sept 17)			
Location: Approximately 295 feet west of the Commerce Lane/County Road 13 intersection			
Source of Peak Noise: Flying J Travel Center			
Noise Data			
L_{Aeq} (dB)	L_{min} (dB)	L_{max} (dB)	CNEL
52.4	43.1	79.3	60.0

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 24 hours		Sky: Clear
	Note: dBA Offset = 0.03		Sensor Height (ft): 3
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-3 mph	High: 90° / Low 54°	29.76in

Photo of Measurement Location

Facing Southeast

Facing South

Measurement Report

Report Summary

Meter's File Name	LxT_Data.083.s	Computer's File Name	LxT_0006133-20210916 142519-LxT_Data.083.ldbin
Meter	LxT1 0006133		
Firmware	2.404		
User		Location	
Job Description			
Note			

Start Time	2021-09-16 14:25:19	Duration	24:00:00.0		
End Time	2021-09-17 14:25:19	Run Time	24:00:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	52.4 dB		
LAE	101.8 dB	SEA	--- dB
EA	1.7 mPa²h		
EA8	561.9 µPa²h		
EA40	2.8 mPa²h		
LZS_{peak}	101.6 dB	2021-09-17 13:55:38	
LAS_{max}	79.3 dB	2021-09-16 18:04:22	
LAS_{min}	43.1 dB	2021-09-17 11:16:31	
LA_{eq}	52.4 dB		
LC_{eq}	67.8 dB	LC_{eq} - LA_{eq}	15.3 dB
LAI_{eq}	53.6 dB	LAI_{eq} - LA_{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	59.8 dB	51.6 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	60.0 dB	51.1 dB	53.1 dB	53.6 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	52.4 dB		--- dB		--- dB	
$Ls_{(max)}$	79.3 dB	2021-09-16 18:04:22	--- dB		--- dB	
$LS_{(min)}$	43.1 dB	2021-09-17 11:16:31	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		101.6 dB	2021-09-17 13:55:38

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	56.5 dB
LAS 10.0	55.1 dB
LAS 33.3	52.2 dB
LAS 50.0	50.9 dB
LAS 66.6	49.6 dB
LAS 90.0	47.2 dB

Site Number: 2			
Recorded By: Seth Myers			
Job Number: 2021-186			
Date: September 17, 2021			
Time: 2:15 p.m. – 3:07 p.m.			
Location: Address 6381 Newville Road			
Source of Peak Noise: Vehicles on Newville Road			
Noise Data			
L_{dn} (dB)	L_{min} (dB)	L_{max} (dB)	Peak (dB)
66.7	50.5	77.5	102.5

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	
Weather Data						
Est.	Duration: 15 minutes		Sky: Clear			
	Note: dBA Offset = 0.05		Sensor Height (ft): 4.5			
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)			
	2-3 mph	91°	29.82in			

Photo of Measurement Location

Facing Northeast

Facing Southeast

Measurement Report

Report Summary

Meter's File Name	LxT_Data.084.s	Computer's File Name	LxT_0006133-20210917 145207-LxT_Data.084.ldbin
Meter	LxT1 0006133		
Firmware	2.404		
User		Location	
Job Description			
Note			

Start Time	2021-09-17 14:52:07	Duration	0:15:00.0		
End Time	2021-09-17 15:07:07	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	66.7 dB		
LAE	96.2 dB	SEA	--- dB
EA	468.1 µPa²h		
EA8	15.0 mPa²h		
EA40	74.9 mPa²h		
LZS_{peak}	102.5 dB	2021-09-17 15:06:16	
LAS_{max}	77.5 dB	2021-09-17 15:06:16	
LAS_{min}	50.5 dB	2021-09-17 14:55:20	
LA_{eq}	66.7 dB		
LC_{eq}	74.6 dB	LC_{eq} - LA_{eq}	7.9 dB
LAI_{eq}	68.0 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	66.7 dB	66.7 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	66.7 dB	66.7 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	66.7 dB		--- dB		--- dB	
$Ls_{(max)}$	77.5 dB	2021-09-17 15:06:16	--- dB		--- dB	
$LS_{(min)}$	50.5 dB	2021-09-17 14:55:20	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		102.5 dB	2021-09-17 15:06:16

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	72.6 dB
LAS 10.0	71.0 dB
LAS 33.3	66.5 dB
LAS 50.0	62.8 dB
LAS 66.6	57.6 dB
LAS 90.0	53.1 dB

Site Number: 3
Recorded By: Seth Myers
Job Number: 2021-186
Date: September 17, 2021
Time: 3:10 p.m.- 3:25 p.m.
Location: 40 feet west of address 6319 Newville Road and across from address 6371
Source of Peak Noise: Vehicles on Newville Road

Noise Data			
L_{dn} (dB)	L_{min} (dB)	L_{max} (dB)	Peak (dB)
66.5	49.3	78.8	102.9

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 15 minutes		Sky: Clear
	Note: dBA Offset = 0.05		Sensor Height (ft): 4.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-3 mph	91°	29.82in

Photo of Measurement Location

Facing West

Measurement Report

Report Summary

Meter's File Name	LxT_Data.085.s	Computer's File Name	LxT_0006133-20210917 151011-LxT_Data.085.ldbin
Meter	LxT1 0006133		
Firmware	2.404		
User		Location	
Job Description			
Note			

Start Time	2021-09-17 15:10:11	Duration	0:15:00.0		
End Time	2021-09-17 15:25:11	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	66.5 dB		
LAE	96.0 dB	SEA	--- dB
EA	442.8 µPa²h		
EA8	14.2 mPa²h		
EA40	70.9 mPa²h		
LZS_{peak}	102.9 dB	2021-09-17 15:12:50	
LAS_{max}	78.8 dB	2021-09-17 15:23:46	
LAS_{min}	49.3 dB	2021-09-17 15:10:50	
LA_{eq}	66.5 dB		
LC_{eq}	73.8 dB	LC_{eq} - LA_{eq}	7.3 dB
LAI_{eq}	68.2 dB	LAI_{eq} - LA_{eq}	1.7 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	66.5 dB	66.5 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	66.5 dB	66.5 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	66.5 dB		--- dB		--- dB	
$Ls_{(max)}$	78.8 dB	2021-09-17 15:23:46	--- dB		--- dB	
$LS_{(min)}$	49.3 dB	2021-09-17 15:10:50	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		102.9 dB	2021-09-17 15:12:50

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	71.5 dB
LAS 10.0	70.1 dB
LAS 33.3	66.9 dB
LAS 50.0	64.3 dB
LAS 66.6	60.6 dB
LAS 90.0	52.7 dB

Site Number: 4			
Recorded By: Seth Myers			
Job Number: 2021-186			
Date: September 17, 2021			
Time: 3:27 p.m.- 3:42 p.m.			
Location: 35 feet north of the Hoft Way/ Road HH Intersection			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
L_{dn} (dB)	L_{min} (dB)	L_{max} (dB)	Peak (dB)
58.1	54.2	70.1	98.4

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky:** Clear
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 4.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-3 mph	91°	29.82in

Photo of Measurement Location

Facing West

Facing South

Measurement Report

Report Summary

Meter's File Name	LxT_Data.086.s	Computer's File Name	LxT_0006133-20210917 152739-LxT_Data.086.ldbin
Meter	LxT1 0006133		
Firmware	2.404		
User		Location	
Job Description			
Note			

Start Time	2021-09-17 15:27:39	Duration	0:15:00.0		
End Time	2021-09-17 15:42:39	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	58.1 dB		
LAE	87.7 dB	SEA	--- dB
EA	64.9 µPa²h		
EA8	2.1 mPa²h		
EA40	10.4 mPa²h		
LZS_{peak}	98.4 dB	2021-09-17 15:28:19	
LAS_{max}	70.1 dB	2021-09-17 15:30:54	
LAS_{min}	52.4 dB	2021-09-17 15:29:32	
LA_{eq}	58.1 dB		
LC_{eq}	70.6 dB	LC_{eq} - LA_{eq}	12.5 dB
LAI_{eq}	59.3 dB	LAI_{eq} - LA_{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	58.1 dB	58.1 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	58.1 dB	58.1 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	58.1 dB		--- dB		--- dB	
$Ls_{(max)}$	70.1 dB	2021-09-17 15:30:54	--- dB		--- dB	
$LS_{(min)}$	52.4 dB	2021-09-17 15:29:32	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		98.4 dB	2021-09-17 15:28:19

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	61.0 dB
LAS 10.0	60.1 dB
LAS 33.3	57.9 dB
LAS 50.0	57.2 dB
LAS 66.6	56.5 dB
LAS 90.0	55.2 dB

ATTACHMENT B

FHWA Highway Noise Prediction Model

TRAFFIC NOISE LEVELS

Project Number: 2021-186
Project Name: Orland Maverik Gas Station

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	Existing
Source of Traffic Volumes:	KD Anderson & Associates, Inc.
Community Noise Descriptor:	L_{dn}: x CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) Ldn
Commerce Lane													
South of County Road 13	Residential and Undeveloped/	2	0	0	378	35	100	0	0	1.8%	0.7%	0.0	47.1
North of Newville Road	Residential	2	0	0	864	35	100	0	0	1.8%	0.7%	0.0	50.7
County Road 13													
West of Commerce Lane	Residential and Undeveloped/	2	0	0	9	35	100	0	0	1.8%	0.7%	0.0	30.9
Newville Road													
West of Commerce Lane	Residential	2	0	0	2,664	35	100	0	0	1.8%	0.7%	0.0	55.6

TRAFFIC NOISE LEVELS

Project Number: 2021-186
Project Name: Orland Maverik Gas Station

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.			
Analysis Scenario(s):	Existing Plus Project			
Source of Traffic Volumes:	KD Anderson & Associates, Inc.			
Community Noise Descriptor:	L_{dn}:		CNEL:	X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Commerce Lane													
South of County Road 13	Residential and Undeveloped/	2	0	0	414	35	100	0	0	1.8%	0.7%	0.0	47.9
North of Newville Road	Residential	2	0	0	864	35	100	0	0	1.8%	0.7%	0.0	51.1
County Road 13													
West of Commerce Lane	Residential and Undeveloped/	2	0	0	9	35	100	0	0	1.8%	0.7%	0.0	31.3
Newville Road													
West of Commerce Lane	Residential	2	0	0	2,691	35	100	0	0	1.8%	0.7%	0.0	56.0

TRAFFIC NOISE LEVELS

Project Number: 2021-186
Project Name: Orland Maverik Gas Station

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	Cumulative No Project
Source of Traffic Volumes:	KD Anderson & Associates, Inc.
Community Noise Descriptor:	L_{dn}: x CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) Ldn
Commerce Lane													
South of County Road 13	Residential and Undeveloped/	2	0	0	1,305	35	100	0	0	1.8%	0.7%	0.0	52.5
North of Newville Road	Residential	2	0	0	1,359	35	100	0	0	1.8%	0.7%	0.0	52.7
County Road 13													
West of Commerce Lane	Residential and Undeveloped/	2	0	0	225	35	100	0	0	1.8%	0.7%	0.0	44.9
				0									
Newville Road													
West of Commerce Lane	Residential	2	0	0	2,736	35	100	0	0	1.8%	0.7%	0.0	55.7

TRAFFIC NOISE LEVELS

Project Number: 2021-186
Project Name: Orland Maverik Gas Station

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	Cumulative With Project
Source of Traffic Volumes:	KD Anderson & Associates, Inc.
Community Noise Descriptor:	L_{dn}: x CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) Ldn
Commerce Lane													
South of County Road 13	Residential and Undeveloped/	2	0	0	1,341	35	100	0	0	1.8%	0.7%	0.0	52.6
North of Newville Road	Residential	2	0	0	1,359	35	100	0	0	1.8%	0.7%	0.0	52.7
County Road 13													
West of Commerce Lane	Residential and Undeveloped/	2	0	0	225	35	100	0	0	1.8%	0.7%	0.0	44.9
Newville Road													
West of Commerce Lane	Residential	2	0	0	2,763	35	100	0	0	1.8%	0.7%	0.0	55.8

ATTACHMENT C

Federal Highway Administration Roadway Construction Noise Model Outputs – Project Construction

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Site Preparation

Description	Affected Land Use
Site Preparation	Residential

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Tractors/Loaders/Backhoes	No	40	84		250
Tractors/Loaders/Backhoes	No	40	84		250

Calculated (dBA)

Equipment		*Lmax	Leq
Tractors/Loaders/Backhoes		70	66
Tractors/Loaders/Backhoes		70	66
	Total	**70**	**69.1**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Grading

Description	**Affected Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Excavator	No	40		80.7	250
Grader	No	40	85		250
Grader	No	40	85		250

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Excavator		66.7	62.8
Grader		71	67
Grader		71	67
	Total	**71**	**70.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Building Construction

Description	**Affected Land Use**
Building Construction	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Tractors/Loaders/Backhoes	No	40	84		250
Tractors/Loaders/Backhoes	No	40	84		250
Rough Terrain Forklifts	No	40		83.4	250
Rough Terrain Forklifts	No	40		83.4	250
Other Construction Equipment	No	50	85		250
Other Construction Equipment	No	50	85		250
Other Construction Equipment	No	50	85		250
Other Construction Equipment	No	50	85		250

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Tractors/Loaders/Backhoes	70	66
Tractors/Loaders/Backhoes	70	66
Rough Terrain Forklifts	69.4	65.4
Rough Terrain Forklifts	69.4	65.4
Other Construction Equipment	71	68
Other Construction Equipment	71	68
Other Construction Equipment	71	68
Other Construction Equipment	71	68
Total	**71**	**76.1**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Vapor Recovery Instillation

Description	**Affected Land Use**
Vapor Recovery Instillation	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Crane	No	16		80.6	250
Other Construction Equipment	No	50	85		250
Tractors/Loaders/Backhoes	No	40	84		250
Tractors/Loaders/Backhoes	No	40	84		250
Tractors/Loaders/Backhoes	No	40	84		250
Excavator	No	40		80.7	250
Trenchers	No	20		79.1	250

Calculated (dBA)

Description		***Lmax**	**Leq**
Crane		66.6	58.6
Other Construction Equipment		71	68
Tractors/Loaders/Backhoes		70	66
Tractors/Loaders/Backhoes		70	66
Tractors/Loaders/Backhoes		70	66
Excavator		66.7	62.8
Trenchers		65.2	58.2
	Total	**71**	**73.4**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Paving

Description	Affected Land Use
Paving	Residential

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Paver	No	50		77.2	250
Paving Equipment	No	20		89.5	250
Paving Equipment	No	20		89.5	250
Surfacing Equipment	No	20		89.5	250
Surfacing Equipment	No	20		89.5	250
Tractors/Loaders/Backhoes	No	40	84		250
Tractors/Loaders/Backhoes	No	40	84		250

Calculated (dBA)

Equipment	*Lmax	Leq
Paver	63.2	60.2
Paving Equipment	75.5	68.5
Paving Equipment	75.5	68.5
Surfacing Equipment	75.5	68.5
Surfacing Equipment	75.5	68.5
Tractors/Loaders/Backhoes	70	66
Tractors/Loaders/Backhoes	70	66
Total	**75.5**	**75.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/2/2021
Case Description: Painting

Description	**Affected Land Use**
Painting	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Other Painting Equipment	No	50	85		250
Other Painting Equipment	No	50	85		250

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Other Painting Equipment	71	68
Other Painting Equipment	71	68
Total	**71**	**71**

*Calculated Lmax is the Loudest value.

ATTACHMENT D

SoundPLAN Outputs – Onsite Project Noise

SoundPLAN
Output Source Information - Unmitigated Scenario

Number	Reciever Name	Location	Level at Ground Floor
1	Residential	Approximately 295 feet west of the Commerce Lane/County Road 13 intersection	41.5 dBA
2	Residential	Residence southwest of Project Site	40.6 dBA
3	Residential	Residence northwest of Project Site	45.1 dBA
4	Residential	Residence North of Project Site	46.5 dBA
5	Commercial	Moose Lodge North of Project Site	44.0 dBA
6	Residential	40 feet west of address 6319 Newville Road and across from address 6371	40.1 dBA

Number	Noise Source Information	Citation	Level at Source
1	Parking Lot Noise	ECORP Consulting, Inc. Reference Noise Measurement (Parking Lot Noise)	61.8 dBA
2	Gas Station Activity	ECORP Consulting, Inc. Reference Noise Measurement (Gas Station Activity)	61.7 dBA
3	Fast Food Drive Thru	ECORP Consulting, Inc. Reference Noise Measurement (Fast Food Drive Thru)	76.2 dBA
4	Onsite Truck Maneuvering at Warehouse	ECORP Consulting, Inc. Reference Noise Measurement (Onsite Truck Maneuvering at Warehouse)	64.6 dBA

SoundPLAN
Output Source Information - Mitigated Scenario

Number	Reciever Name	Location	Level at Ground Floor
1	Residential	Approximately 295 feet west of the Commerce Lane/County Road 13 intersection	41.5 dBA
2	Residential	Residence southwest of Project Site	40.3 dBA
3	Residential	Residence northwest of Project Site	42.5 dBA
4	Residential	Residence North of Project Site	44.6 dBA
5	Commercial	Moose Lodge North of Project Site	44.9 dBA
6	Residential	40 feet west of address 6319 Newville Road and across from address 6371	39.6 dBA

Number	Noise Source Information	Citation	Level at Source
1	Parking Lot Noise	ECORP Consulting, Inc. Reference Noise Measurement (Parking Lot Noise)	61.8 dBA
2	Gas Station Activity	ECORP Consulting, Inc. Reference Noise Measurement (Gas Station Activity)	61.7 dBA
3	Fast Food Drive Thru	ECORP Consulting, Inc. Reference Noise Measurement (Fast Food Drive Thru)	76.2 dBA
4	Onsite Truck Maneuvering at Warehouse	ECORP Consulting, Inc. Reference Noise Measurement (Onsite Truck Maneuvering at Warehouse)	64.6 dBA

Attachment 4.17

Traffic Impact Analysis for Maverik C-Store/Fuel Sales/QSR, KD Anderson & Associates, Inc.

TRAFFIC IMPACT ANALYSIS

FOR

MAVERIK C-STORE / FUEL SALES/ QSR

Orland, CA

Prepared For:

Cartwright Nor Cal, Inc.
3010 Lava Ridge Court, Suite 160
Roseville, CA 95661

Prepared By:

KD Anderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, California 95650
(916) 660-1555

October 20, 2021

1285-03

Orland Maverik.rpt

TRAFFIC IMPACT ANALYSIS FOR
MAVERIK C-STORE / FUEL SALES/ QSR
Orland, CA

TABLE OF CONTENTS

TRAFFIC IMPACT ANALYSIS FOR
MAVERIK C-STORE / FUEL SALES / QSR
Orland, CA

INTRODUCTION

This report summarizes KD Anderson & Associates analysis of the potential traffic impacts associated with development of the Maverik Store / Fuel Sales in Orland, CA. The project involves developing fuel sales with Convenience Store and attached fast-food restaurant on the west side of Commerce Lane south of the Newville Road / Commerce Lane (County Road HH) intersection in western Orland. The project site is located across from the Flying J Travel Stop as noted in Figure 1. Access to the site is proposed via driveways on Commerce Lane (County Road HH), as shown in Figure 2.

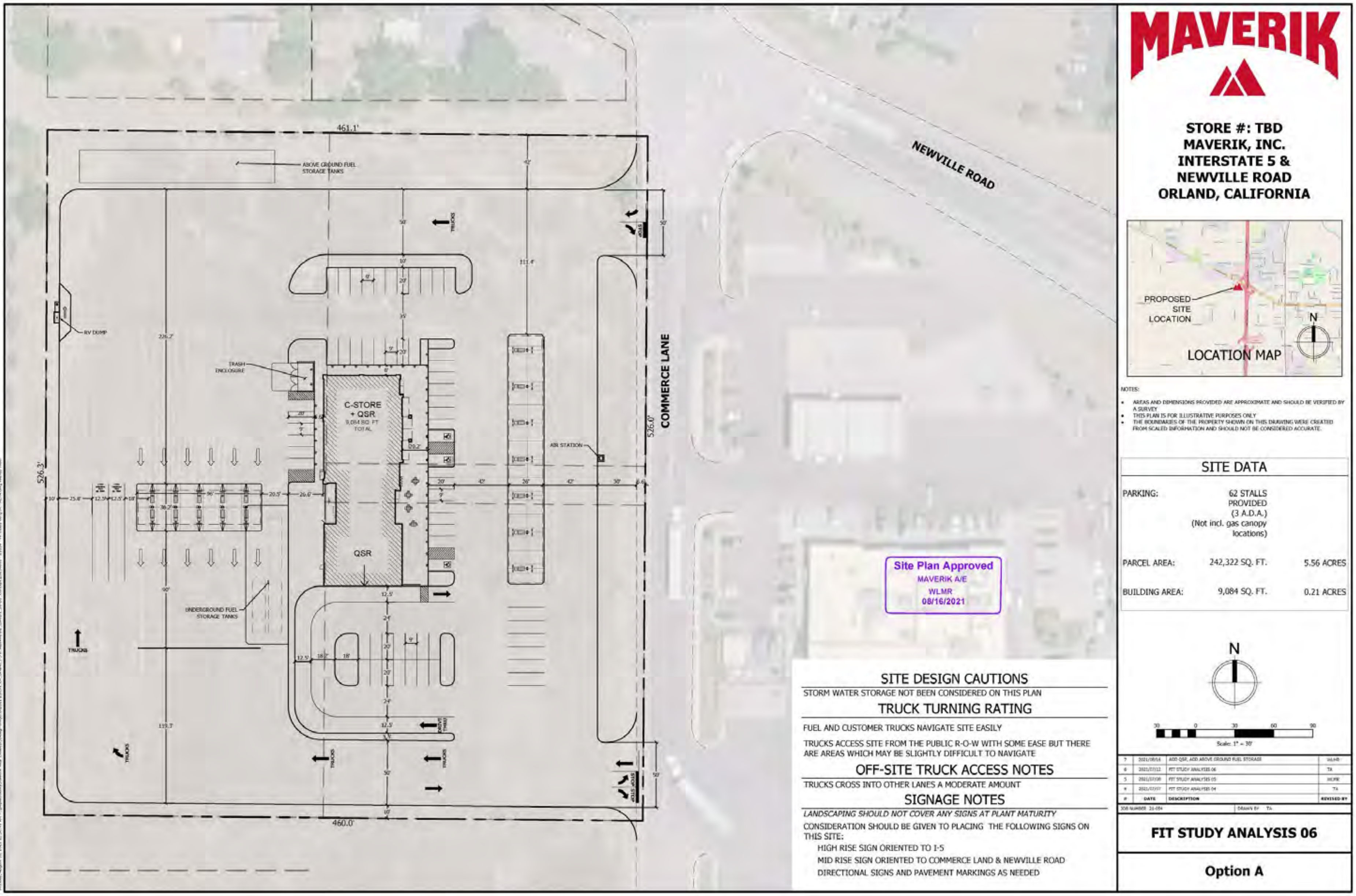
The purpose of this analysis is to identify potential transportation related impacts under the California Environmental Quality Act (CEQA) as well as the traffic operational effects of the project within the context of current traffic conditions and within the context of future traffic conditions in the Orland area. This analysis includes evaluation of existing circulation conditions in the area based upon current weekday a.m. and p.m. peak hour traffic volumes. The extent to which improvements may already be needed to meet minimum City of Orland and Caltrans standards has been determined. The characteristics of the proposed project have been determined based on probable peak hour and daily trip generation, regional trip distribution and local trip assignment. Forecasts of future year traffic conditions, including other development anticipated under the Orland General Plan have been analyzed with and without the proposed project. Mitigation measures needed to ensure satisfactory operation of area intersections under each development scenario have been identified, and the project's fair share contribution at each location has been calculated.

VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

1285-03 RA 10/20/2021

figure 1


MAVERIK
STORE #: TBD
MAVERIK, INC.
INTERSTATE 5 &
NEWVILLE ROAD
ORLAND, CALIFORNIA
PROPOSED SITE LOCATION
LOCATION MAP
N
NOTES:
AREAS AND DIMENSIONS PROVIDED ARE APPROXIMATE AND SHOULD BE VERIFIED BY A SURVEY
THIS PLAN IS FOR ILLUSTRATIVE PURPOSES ONLY
THE BOUNDARIES OF THE PROPERTY SHOWN ON THIS DRAWING WERE CREATED FROM SCALED INFORMATION AND SHOULD NOT BE CONSIDERED ACCURATE.
SITE DATA
PARKING: 62 STALLS PROVIDED (3 A.D.A.) (Not incl. gas canopy locations)
PARCEL AREA: 242,322 SQ. FT. 5.56 ACRES
BUILDING AREA: 9,084 SQ. FT. 0.21 ACRES
N
FIT STUDY ANALYSIS 06
Option A
NEWVILLE ROAD
COMMERCE LANE
461.1'
460.0'
526.3'
526.0'
C-STORE + QSR
QSR
ABOVE GROUND FUEL STORAGE TANKS
UNDERGROUND FUEL STORAGE TANKS
TRASH ENCLOSURE
AIR STATION
RV DUMP
TRUCKS
Site Plan Approved
MAVERIK A/E
WLMR
08/16/2021
SITE DESIGN CAUTIONS
STORM WATER STORAGE NOT BEEN CONSIDERED ON THIS PLAN
TRUCK TURNING RATING
FUEL AND CUSTOMER TRUCKS NAVIGATE SITE EASILY
TRUCKS ACCESS SITE FROM THE PUBLIC R-O-W WITH SOME EASE BUT THERE ARE AREAS WHICH MAY BE SLIGHTLY DIFFICULT TO NAVIGATE
OFF-SITE TRUCK ACCESS NOTES
TRUCKS CROSS INTO OTHER LANES A MODERATE AMOUNT
SIGNAGE NOTES
LANDSCAPING SHOULD NOT COVER ANY SIGNS AT PLANT MATURITY
CONSIDERATION SHOULD BE GIVEN TO PLACING THE FOLLOWING SIGNS ON THIS SITE:
HIGH RISE SIGN ORIENTED TO I-5
MID RISE SIGN ORIENTED TO COMMERCE LAND & NEWVILLE ROAD
DIRECTIONAL SIGNS AND PAVEMENT MARKINGS AS NEEDED

SITE PLAN

EXISTING SETTING

Existing Street and Highway System

The proposed project will be served by several major roadways. Regional access is provided by Interstate 5 and State Route 32, which link the site with the other Northern California communities to the north and south and with the City of Orland to the east. Local access to the project site is provided via Newville Road and County Road HH. The following is a description of these facilities, as well as other roadways in the area of the project site.

Interstate 5 (I-5) is a north-south four-lane freeway that adjoins western Orland. Interstate 5 is the primary route through California and begins at the US-Mexico border in southern California and extends northerly to the California-Oregon border. Access to Interstate 5 is controlled and in the area of the project interchanges at South Street (County Road 16) and at SR 32-Newville Road are available. The most recent traffic volume counts published by Caltrans for 2019 indicate that I-5 carried an *Annual Average Daily Traffic (AADT)* volume of 27,000 to 28,000 vehicles per day through the City of Orland. Trucks comprise 29% of the daily volume south of SR 32 and 25% north of SR 32 according to Caltrans data.

State Route 32 (SR 32) is an east-west route that connects with I-5 in Orland and SR 99 in Chico. The portion of SR 32 in the City of Orland located in the vicinity of I-5 is also known as Newville Road. In the area immediately east of the I-5 interchange Newville Road (SR 32) is a two lane/four lane arterial with left-turn lanes at intersections. The speed limit on SR 32 is 35 miles per hour (mph) east of I-5. According to the Caltrans website, the segment of Newville Road (SR 32) east of the interchange carried 9,700 AADT in 2019, with the volume rising to 12,800 AADT in the area east of the 6th Avenue intersection. The State Route 32 Transportation Concept Report identified the current daily traffic volume east of I-5 at 9,752, which is in line with recent peak hour counts. Trucks comprise 12% of the daily traffic on SR 32 through Orland according to Caltrans data.

The **I-5 / SR 32 (Newville Road) interchange** is a partial cloverleaf layout. Northbound and southbound off-ramps terminate at all-way stop sign controlled intersections on Newville Road. Separate on-ramps to I-5 are provided in both directions which eliminates left turning traffic across mainline Newville Road. SR 32 has a two-lane crossing over I-5. Caltrans publishes daily traffic volume information for freeway ramps. The most recent data from 2017 is summarized in Table 1. Counts were made in 2014 before the Flying J opened are also presented.

Newville Road west of I-5 is a Glenn County road that extends for roughly 7 miles to the Tehama County line near Black Butte Lake. This portion of Newville Road is designated a Minor Arterial in the Glenn County General Plan Circulation Element and an Arterial in the City of Orland General Plan Circulation Element. Newville Road is a two-lane rural road west of I-5 with a posted speed limit of 35 mph. The most recent traffic volume counts made of the Orland GPU EIR in 2009 indicated that Newville Road carried 5,108 vehicles per day west of County Road HH, however this count was made before the Flying J opened.

TABLE 1 DAILY INTERSTATE 5 RAMP VOLUMES			
Direction	Location	Daily Volume	
		2014	2017
Southbound	Off-ramp to Newville Road (SR 32)	1,150	1,351
	On-ramp from westbound Newville Road	1,200	1,391
	On-ramp from eastbound Newville Road	580	581
Northbound	Off-ramp to Newville Road (SR 32)	1,600	1,611
	On-ramp from eastbound Newville Road (SR 32)	330	311
	On-ramp from westbound Newville Road (SR 32)	460	871

County Road HH (Commerce Lane) is a north-south street that runs southerly from an intersection on County Road 12 across Newville Road to its southern terminus on County Road 15 (Newport Road). County Road HH provides access to existing highway commercial, light industrial and residential uses west of I-5. County Road HH is designated a Minor Collector in the Orland Circulation Element. The Orland General Plan Circulation Element indicates that County Road HH will be extended south to County Road 16 in the future. Today the portion of County Road HH near the project is called Commerce Road and was widened with the Flying J project. The rural prima facie speed limit of 55 mph is in effect on County Road HH south of Newville Road. The Orland General Plan EIR identifies the daily traffic volume on County Road HH was 945 vehicles per day in the area south of Newville Road before the Flying J opened.

The **Newville Road / Commerce Lane (County Road HH) intersection** is controlled by an all-way stop. Improvements were made with the Flying J, and there are separate left turn lanes on the Newville Road approaches and a separate right turn lane on the northbound County Road HH approach.

County Road 13 is a two-lane local street that connects County Road HH with rural residential areas west of I-5. County Road 13 extends east from the County Road HH intersection along the Pilot Flying J Site to a turn-around near the I-5 right of way. No daily traffic volume counts are available for County Road 13.

The **County Road HH / County Road 13 intersection** is controlled by an all-way stop. There is a separate southbound left turn lane on County Road HH at this intersection.

Alternative Transportation Modes

Sidewalks. Concrete and asphalt sidewalks exist at various locations along most City of Orland streets but become less prevalent on Glenn County roads adjoining the community. As noted in Table 2, there are few sidewalks in the area west of I-5 although there is existing sidewalk on the north side of Newville Road (SR 32) across I-5.

TABLE 2 SIDEWALK INVENTORY				
Street	**From**	**To**	**Side**	**Sidewalk**
Newville Road	County Road HH	Southbound I-5 ramps	North	Partial
			South	No
	Southbound I-5 ramps	Northbound I-5 ramps	North	Yes
			South	No
	Northbound I-5 ramps	9th Street – Tehama Street	North	Yes
			South	Partial
	9th Street – Tehama Street	8th Street	North	Yes
			South	Yes
County Road HH	Newville Road	County Road 13	East	Yes
			West	No
	County Road 13	County Road 14	East	No
			West	No

Bicycle Facilities. Presently there are no formally designated bicycle lanes or bicycle facilities in the area of the project, but bike lanes have been installed elsewhere in the City of Orland, and the City understands the need to move people through the community. The Glenn County Active Transportation Plan (2019) does not identify the need for future bicycle facilities across or west of I-5.

Public Transit. Public transportation bus service is provided to the City of Orland through Glenn Ride, which is a transit service provided by Glenn County. It is a fixed-route bus system with seven round trips every weekday and three round trips on Saturday from Willows to Chico. There are currently 8 bus stops in Orland. This service makes seven runs daily from 5:46 AM to 5:48 PM Monday thru Friday, with three runs on Saturday. The stop closest to the proposed project is across I-5 at the 9th Street / Newville Road intersection (i.e., CVS Pharmacy & Burger King).

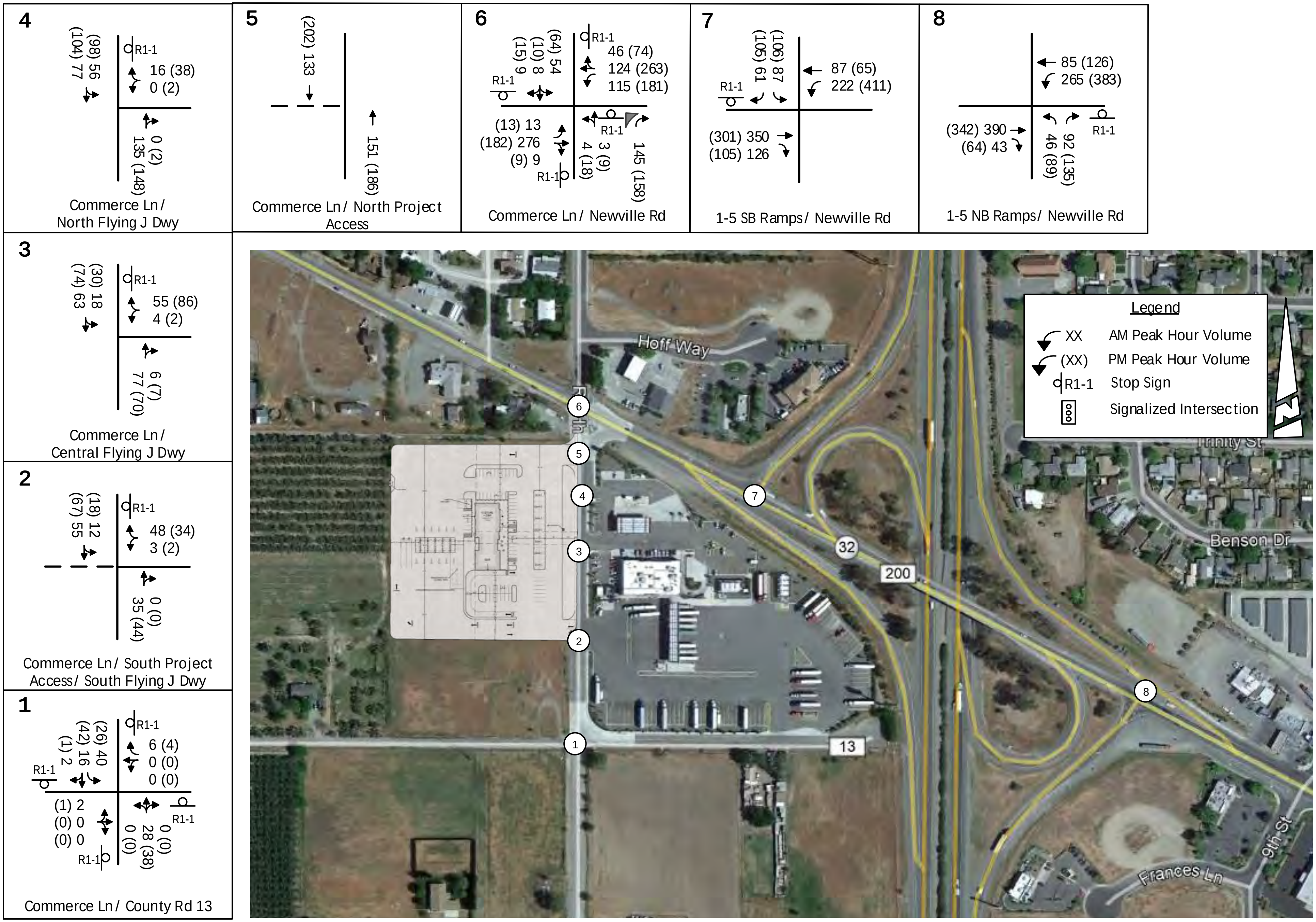
Existing Peak Hour Traffic Volumes

To quantify existing traffic conditions, peak hour intersection automobile and truck turning movement count data were collected for this analysis at the four existing study intersections. The count data was collected on September 2, 2021 during the 7:00 a.m. to 9:00 a.m. morning peak period and the 4:00 p.m. to 6:00 p.m. evening peak period when the Flying J was in normal operation and local schools were in session.

To address the effects of COVID-19 the counts were compared to available data for the I-5 / SR 32 interchange collected on November 29, 2016 for the City of Orland. As indicated, observed traffic volumes exceed the available pre-COVID counts, however comparison of specific turning movements indicated that westbound through traffic on Newville Road was slightly lower than previously observed. The movement volume was adjusted upwards by 20 vph during each time period. Adjusted existing peak hour traffic volume data, as well as current intersection traffic controls and intersection lane geometry, are presented in Figure 3.

TABLE 3
COMPARISON OF PRE-COVID AND 2021 TRAFFIC VOLUMES

Location	Time Period	Peak Hour Volume		Ratio
		2016	2021	
SR 32 / I-5 SB ramps	AM	858	913	1.06
	PM	1,040	1,067	1.03
SR 32 / I-5 NB ramps	AM	846	901	1.07
	PM	1,063	1,119	1.05



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

1285-03 RA 10/20/2021

figure 3

Level of Service Definition and Calculation

To quantitatively evaluate traffic conditions, and to provide a basis for comparison of operating conditions with and without traffic generated by the proposed project, Levels of Service (LOS) were determined at study area intersections and at freeway ramp terminals.

Level of Service is a quantitative measure of traffic operating conditions using letter grades “A” through “F” to characterize operating conditions at an intersection, on highways and at freeway ramp terminals. LOS A through F represents progressively worsening traffic conditions. The characteristics associated with the various Levels of Service for intersections are presented in Table 4.

TABLE 4
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection
A	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh
B	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and≤ 15 sec/veh
C	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and≤ 25 sec/veh
D	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and≤ 35 sec/veh
E	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and≤ 50 sec/veh
F	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh

Source: Highway Capacity manual, 6th Edition

Levels of service were calculated for this study using the methodology contained in the *2010 Highway Capacity Manual* (Transportation Research Board 2012). At signalized intersections and intersections controlled by four-way stop signs, the overall Level of Service for intersections is based on the average length of delays for all motorists at the intersection. At two-way stop-sign-controlled unsignalized intersections (or one-way stop T intersections), the Level of Service is based on the length of the average delay experienced by motorists on the worst single movement, which is typically a left turn made from the stop-sign-controlled approach to the intersection. It should be noted that overall intersection average Level of Service at un-signalized intersections is better, often much better, than the Level of Service for the worst single movement.

Level of Service calculations for intersections specifically account for the presence of large trucks whose acceleration and deceleration characteristics differ from passenger vehicles. Both calculations include truck percentage as an input and reduce the theoretical facility capacity accordingly to account for the presence of large vehicles. As noted later in this report, current truck percentages were identified in the new traffic counts and adjusted under each scenario as needed to reflect future conditions.

Level of Service Based on Roadway Segment Volume

The Orland General Plan EIR addressed Level of Service at a planning level on roadway segments based on daily traffic volume. The roadway segment Level of Service criteria identifies maximum daily traffic volume thresholds for each Level of Service grade. Thresholds are identified based on facility classification (i.e., arterials, major collectors, minor collectors, and local roadways) and the number of through travel lanes. The thresholds presented in the City of Orland General Plan EIR are shown in Table 5.

Traffic volumes vary substantially during a 24-hour period and at locations within roadway segments. As a result, Level of Service based on roadway segments daily volume is an inherently generalized analysis approach that is intended to approximate conditions at the most congested locations during the peak period of the day.

TABLE 5
LEVEL OF SERVICE THRESHOLDS FOR ROADWAY SEGMENTS
BASED ON DAILY TRAFFIC VOLUME

Classification	Lanes	Maximum Daily Volume at LOS				
		A	B	C	D	E
Arterial	4	18,000	21,000	24,000	27,000	30,000
	2	9,000	10,500	12,000	13,500	15,000
	2+	13,500	15,750	18,000	20,250	22,500
Major Collector	2	7,620	8,890	10,160	11,430	12,700
	2+	11,430	13,335	15,240	17,145	19,050
Minor Collector	2	4,800	5,600	6,400	7,200	8,000
Local	2	2,700	3,150	3,600	4,050	4,500

2+ indicates capacity created on Newville Road by second eastbound lane dropping onto SB SR 32 per Flying J DEIR, or by adding s send southbound lane on Commerce Street

Level of Service Standards

Minimum Level of Service standards are adopted by local agencies and Caltrans for their respective facilities and presented in various documents.

Caltrans is responsible for maintaining and operating I-5 and SR 32. In accordance with guidance from Caltrans District 3, methods described in the *Guide for the Preparation of Traffic Impact Studies* (California Department of Transportation 2002) were used in this analysis. This document notes that:

> "Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' (see Appendix 'C-3') on State highway facilities . . ."

Therefore, for this analysis, LOS C and better are considered acceptable, and LOS D and worse is considered unacceptable at intersections along the SR 32. The *Guide for the Preparation of Traffic Impact Studies* specifies application of these criteria to signalized intersections. The document does not specify a minimum acceptable LOS for un-signalized intersections. However, for this analysis, these criteria are also applied to un-signalized intersections.

The City of Orland General Plan Circulation Element identified the minimum standard adopted by the City.

> "**Policy 3.3.A:** Construct street and highway improvements to maintain an overall daily roadway Level of Service of "C" with an a.m. and p.m. peak hour roadway and intersection Level of Service of "D" or better, unless other public health, safety, or welfare factors determine otherwise."

Traffic Signal Warrants Procedures

Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street, resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of particular types of accidents. Therefore, if signals are installed where signal warrants are not met, the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signal warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

The City of Orland conducted a complete traffic signal warrant analysis for the I-5 / SR 32 ramp intersections based on November 2016 data. That assessment determined that traffic signals were not immediately justified.

For this traffic impact study, available data are limited to a.m. and p.m. peak hour volumes. Thus, un-signalized intersections were evaluated using the Peak Hour Warrant (Warrant Number 3) from the California Department of Transportation document *Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2010 Edition, as amended for use in California)* (MUTCD) (California Department of Transportation 2012). Urban analysis criteria were employed based on the speed limit on Newville Road – SR 32 (i.e., 35 mph).

Current Peak Hour Traffic Conditions

Intersections. Current a.m. and p.m. peak hour LOS were calculated at existing study intersections under Existing conditions. The results of this analysis are presented in Table 6. The LOS calculation worksheets for Existing conditions are presented in the Appendix**.**

As shown in Table 6, all of the study intersections currently operate with peak hour Level of Service that meets the City's minimum LOS D standard but also meet the Caltrans LOS C goal. No improvements at these intersections are needed.

Current traffic volumes at un-signalized study intersections were compared to peak hour traffic signal warrant thresholds, and no location carries volumes that satisfy peak hour warrants.

TABLE 6
EXISTING PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Control	AM Peak Hour		PM Peak Hour		Warrants Met?
		Ave Delay (Sec/Veh)	LOS	Ave Delay (Sec/Veh)	LOS	
Newville Road / County Road HH	All-Way Stop	12	B	14	B	No
Newville Road (SR 32) / SB I-5 ramps	All-Way Stop	12	B	14	B	No
Newville Road (SR 32) / NB I-5 ramps	All-Way Stop	13	B	14	B	No
County Road HH /Road 13	All-Way Stop	8	A	8	A	No

LOS = Level of Service

I-5 ramp Queues. The length of peak period queues on the I-5 off ramps have been assessed in order to consider the project's effects on safety on mainline I-5. Table 7 identifies the current off-ramp volumes, 95^{th} percentile queue length based on microsimulation and storage distance to the ramp gore point or end of separate turn lane. As noted, current queues do not exceed turn lane length or reach the gore point.

TABLE 7
EXISTING I-5 OFF RAMP QUEUES

Intersection	Lane	Length	AM Peak Hour		PM Peak Hour		Storage exceeded?
			Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	
I-5 SB off ramp to SR 32	All	1,020	148	110	211	90	No
I-5 NB off ramp to SR 32	Right	1,080	92	75	135	80	No
	Left	160	46	75	89211	65	No

LOS = Level of Service

PROJECT CHARACTERISTICS

Project Description

Land Use. The proposed project is a gasoline / diesel sales center with 24 fueling positions for automobiles and trucks with a 9,084 sf building combining a convenience store and quick serve restaurant with drive-thru aisle. To address site trip generation the building has been assumed to be divided into a 5,800 ksf store and a 3,200 sf restaurant.

Access. Access to the site is proposed at two driveways on Commerce Lane. The more north driveway is immediately south of the Newville Road intersection and is limited to right turns in and out only. This location would be the primary entrance for trucks arriving from the I-5 / SR 32 interchange. The more southerly driveway would have full access and would be the primary truck exit. This driveway is opposite the main truck exit for the Flying J Travel Center. No direct access is proposed to Newville Road, and the site plan does not propose reciprocal access to County Road HH through the property to the south.

Trip Generation

The number of vehicle trips that are expected to be generated by development of the project has been estimated from two perspectives. First trip generation rates that are applicable to gasoline stations / C stores were reviewed. However, because many of the project's fueling positions are devoted to diesel sales the extent to which typical trip generation rates for gasolines sales would be applicable has been considered. New peak hour traffic counts were conducted at an existing similar Maverik Store for comparison.

Trip Generation Rates. Specific trip generation rates published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition.* were reviewed. The applicable trip generation rates for large gas stations with convenience stores are noted in Table 8. The trip generation rates for Land Use 960 ***Super Convenience Market / Gas Station*** are presented based on the size of the store. The Quick Serve Restaurant with Drive-Thru (QSR) has been assumed to be most similar to ITE land use 934 ***Fast-Food Restaurant with Drive Through Aisle.***

Table 8 also presents the results of weekday peak hour traffic counts conducted at another Maverik site of similar store size but without a QSR. As shown, equivalent a.m. and p.m. peak hour trip generation rates were calculated from that data on a "per store ksf" and "per fueling positions" bases, and automobiles and trucks per counted separately. Comparison of the rates with ITE data revealed that the rates derived from observed Maverik traffic were appreciably lower than those identified by ITE, particularly during the a.m. peak hour. Review of the calculated "per fueling position" rates provided an explanation for the difference. As shown the number of observed truck trips was relatively small, and the "per position" rates for that portion of the site were also very much smaller than the comparable overall ITE rate.

The typical service rate through the diesel fueling area provides additional explanation. Large trucks occupy two fueling positions in order to fill each saddle tank concurrently. These pumps fill at a rate of 10 gallon per minute, and the fuel tanks of large trucks have a 150 to 200 gallon capacity. Assuming trucks fill when 90% empty, it would take 7 to 9 minutes to simply fill up the tanks, and the total length of the transaction can be much longer. Thus, each hour three or four trucks could be accommodated by each pair of diesel fueling positions.

For this analysis the observed a.m. and p.m. peak hour trip generation rates on per ksf basis have been used. As show in Table 9, in the a.m. peak hour 328 gross trips are forecast, with 362 trips in the p.m. peak hour. Trucks have been assumed to be 10% of the total trips in the a.m. peak hour and 5% in the p.m. peak hour.

Traffic observations at Maverik were not made on a daily basis. For this analysis it has been assumed that the ITE daily rate would be factored in proportion to the ratio of the sum of observed and ITE rates. A gross total of 3,974 daily trips are expected.

The Quick Serve Restaurant with Drive-Thru (QSR) has been assumed to be most similar to ITE land use 934 ***Fast-Food Restaurant with Drive Through Aisle.*** This part of the project would generate 1,507 daily trips, with 129 and 105 trips in the a.m. and p.m. peak hour, respectively.

Internal / External Trips. The interaction between on-site uses would result in "internal" trips that would not reach the local street system and would reduce the gross trip generation estimate. This analysis assumes that 25% of the trips associated with the quick serve restaurant would be made by persons who also visited the gas sales / convenience store. After discount of these internal trips, the project could generate a total of 391 external a.m. peak hour trips and 417 external p.m. peak hour trips.

Pass-by Trips / Diverted Linked Trips. A share of the trips associated with retail uses are typically drawn from the stream of traffic already near the site by customers who stop on their way as part of another trip. The ITE Trip Generation handbook contains the results of pass-by trip studies prepared for various uses. In this case no published rates are available for Code 960 Super Convenience Stores, and the rates identified for Code 945 Gasoline Station with Convenience Store were employed. After reduction for pass-by trips, the overall project is expected to generate 1,994 primary daily trips, with 159 primary trips in the a.m. peak hour and 189 primary trips in the p.m. peak hour.

TABLE 8 TRIP GENERATION RATES									
Source	**Description**	**Quantity**	**Daily**	**AM Peak Hour**			**PM Peak Hour**		
				In	**Out**	**Total**	**In**	**Out**	**Total**
ITE rates									
960	Super Convenience Market / Gas Station	Ksf	837.58	50%	50%	83.14	50%	50%	69.28
		Fueling position	230.52	50%	50%	28.08	50%	50%	22.96
934	Fast-Food Restaurant with Drive Through Aisle	Ksf	470.95	51%	49%	40.19	52%	48%	32.67
Rates Derived from Observation of Maverik in Minden Nevada (5.3 ksf store, 14 gasoline positions and 10 diesel positions)									
Observed	Automobiles	5.3 ksf		135	134	269	165	157	322
	Trucks			13	18	31	4	5	9
	Total			148	152	300	169	162	331
	Rate per ksf	1.0				56.60			62.45
	Automobiles	14 positions				19.21			23.00
	Trucks	10 positions				3.10			0.64
	Total	24 positions				12.50			13.42

TABLE 9
TRIP GENERATION ESTIMATES

Source	Description	Quantity	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
KDA	Fuel Sales / Market - total	1.0 ksf	654.20[1]	50%	50%	56.60	50%	50%	62.45
		5.8 ksf	3,974	164	164	328	181	181	362
	Automobiles (90% daily, 90% am 95% pm)		3,415	148	148	296	172	172	344
	Internal match		340	15	15	30	11	11	22
	External		3,075	133	133	266	161	161	322
	Pass-by and Diverted Linked Trips	60% - 63%-56%[2]	1,845	83	83	166	90	90	180
	Automobile Primary Trips		1,230	50	50	100	71	71	142
	Trucks (10% daily 10% am / 5% pm)		534	16	16	32	9	9	18
	Internal Match		37	2	2	4	1	1	2
	External		497	14	14	28	8	8	16
	Pass-By and Diverted Linked Trips	60% -63%-56%	298	9	9	18	4	4	8
	Truck Primary Trips		199	5	5	10	4	4	8
934	Quick Serve Restaurant with drive-through	3.2 ksf	1,507	66	63	129	54	51	105
	Internal Match	25%	377	16	16	32	13	13	26
	External		1,130	50	47	97	41	38	79
	Pass-By and Diverted Linked Trips	50%	565	24	24	48	20	20	40
	Primary Trips		565	26	23	49	21	18	39
Total External Trips			4,702	197	194	391	210	207	417
Total Pass-By and Diverted Linked Trips			2,708	116	116	232	114	114	228
Total Primary Trips			1,994	81	78	159	96	93	189

[1] equals 837.58 * ((56.60+62.45)/(83.14+69.28))

[2] daily, Am and P.m. pass by trip rates

Trip Distribution. The geographic distribution of project-related trips used in this analysis is based on consideration of the nature of the proposed uses and distribution patterns assumed in the Orland General Plan Update EIR traffic study and Flying J DEIR traffic study.

There are two key factors to be considered. Based on its location, many of the trips associated with these highway commercial uses will be drawn from the stream of traffic passing the site on I-5 or SR 32. Trips would be expected to be drawn from existing traffic on state highways, but a share of the project's automobile traffic may originate in Orland. Some trips could also be drawn from the traffic already visiting the Flying J.

Under normal conditions the trips associated with retail/service uses are divided between "primary", "diverted linked", "pass-by" and "internal" trips. Primary or "new" trips represent those trips specifically made for the purpose of visiting the site. These trips would affect the project access as well as the local and regional circulation system. Pass-by trips are those made as part of another trip by patrons who simply turn into the project. Pass-by trips would not affect the regional circulation system. Link diverted trips are those that already occur on part of the regional circulation system but may use local streets to reach the project. In this case, trips drawn from existing traffic on I-5 to the project are diverted linked trips. "Internal" trips are those made between complimentary uses in the same area that do not actually use the circulation system.

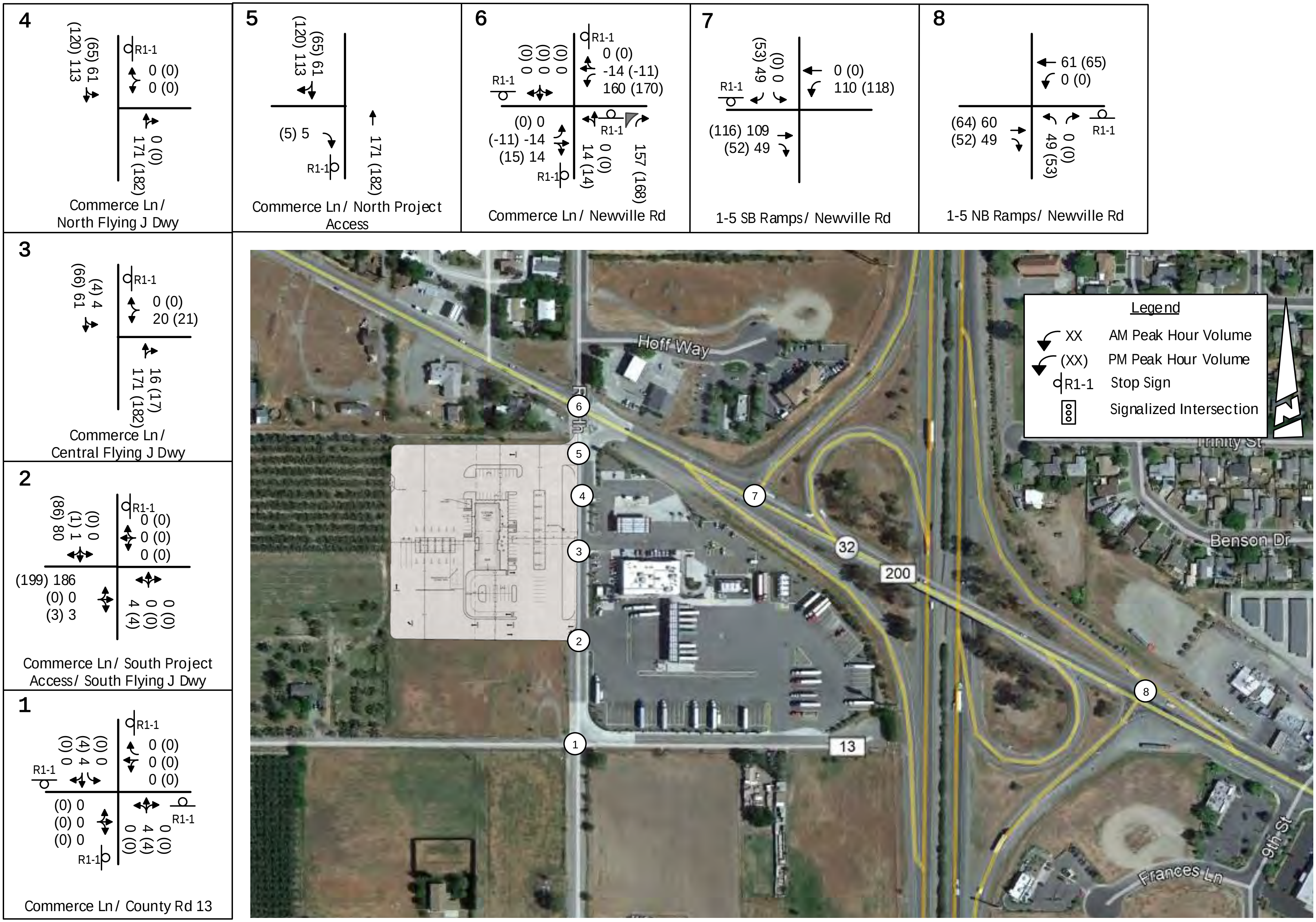
Because the volume of through traffic on Newville Road and County Road HH is low, it has been assumed that the project's trips drawn from traffic on I-5 are diverted-linked trips that would be "new" to the local street system. Trips made by Flying J customers or trips made between complimentary on-site uses on the site would be "internal". The project would create few new "primary" trips on I-5.

Table 10 presents the assumptions made regarding the directional distribution of project trips.

TABLE 10 PROJECT TRIP DISTRIBUTION					
		Percentage by Trip Type			
Direction	**Route**	**Primary**	**Pass-By**	**Diverted Linked**	**Composite[1]**
North	Interstate 5	15%			26% -26%-25%
South	Interstate 5	15%			25% 26%-25%
	County Road HH	5%			2%
East	Newville Road (SR 32)	60%			30%-29%-31%
West	Newville Road	5%			7%
	Commerce Lane - Flying J		100%		10%
	Northbound I-5			40%	
	Southbound I-5			40%	
	Eastbound Newville Road			10%	
	Westbound Newville Road			10%	
Total		**100%**	**100%**	**100%**	**100%**

[1] Daily, AM peak and PM peak values. These percentages vary because share of total trips in each category varies on a daily, a.m. and p.m. peak hour basis.

Trip Assignment. The trips generated by the proposed project were assigned to the study area street system based on the location and traffic controls at the site access and the regional distribution patterns noted previously. Figure 4 presents the resulting overall project trip assignment. As shown, the majority of project trips would enter at the northern driveway as this is the primary route into the truck fueling area and the most obvious route into automobile fueling positions and parking for the C-Store. The restaurant's parking and drive-thru entrance are at the southern end of the site and would primarily be entered via that driveway. Most existing traffic would use the southern driveway.



PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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1285-03 RA 10/20/2021

figure 4

PROJECT CEQA TRANSPORTATION IMPACTS

This report section identifies project impacts under the criteria included under current CEQA guidelines for Vehicle Miles Traveled, alternative transportation modes and a safety on Caltrans facilities.

Vehicle Miles Traveled (VMT) Analysis

VMT refers to the amount and distance of vehicle travel attributable to a project. VMT generally represents the number of vehicle trips generated by a project multiplied by the average trip length for those trips. For CEQA transportation impact assessment, VMT is to be calculated using the origin-destination VMT method, which accounts for the full distance of vehicle trips with one end from the project.

The California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018) provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

- ***Screening Criteria***: Screening criteria are intended to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed study.
- ***Significance Thresholds***: Significance thresholds define what constitutes an acceptable level of VMT and what could be considered a significant level of VMT requiring mitigation.
- ***Analysis Methodology***: These are the potential procedures and tools for producing VMT forecasts to use in the VMT impact assessment.
- ***Mitigation***: Projects that are found to have a significant VMT impact based on the County's significance thresholds are required to implement mitigation measures to reduce impacts to a less than significant level (or to the extent feasible).

Screening Criteria. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

The extent to which the proposed project qualifies under each criterion is noted.

- ***Small Projects:*** Defined as a project that generates 110 or fewer average daily vehicle trips.
- ***Affordable Housing:*** Defined as a project consisting of deed-restricted affordable housing.
- ***Local-Serving Non-Residential Development***: The directive notes that local serving retail uses can reduce travel by offering customers more choices in closer proximity. Local

serving retail uses of 50,000 square feet or less can be presumed to have a less than significant impact.

- ***Projects in Low VMT-Generating Area:*** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility, etc.) as the surrounding built environment.
- ***Proximity to High Quality Transit.*** The directive notes that employment and residential development located within ½ mile of a high-quality transit corridor can be presumed to have a less than significant impact.

Evaluation. The extent to which the proposed project's VMT impacts can he presumed to be less than significant has been determined based on review of the OPR directive's screening criteria and general guidance.

The OPR Small Project criteria is not applicable to this project. The project is projected to generate 2,283 primary daily vehicle trips. As the 110 ADT threshold for automobile trips is exceeded, the project's VMT impacts cannot be presumed to be less than significant.

The Maverik project is not an Affordable Housing Project, and this OPR screening criteria does not apply.

OPR provides this direction for retail projects:

> ***Retail Projects.*** *Generally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns.*

OPR also provides guidance regarding ***Screening Thresholds*** that would allow agencies to quickly identify when a project should be expected to cause a less-than significant impact without conducting as detailed study. OPR states:

> By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant.
>
> Many cities and counties define local-serving and regional-serving retail in their zoning codes. Lead agencies may refer to those local definitions when available, but should also consider any project-specific information, such as market studies or economic impacts analyses that might bear on customers' travel behavior. Because

lead agencies will best understand their own communities and the likely travel behaviors of future project users, they are likely in the best position to decide when a project will likely be local-serving. Generally, however, retail development including stores larger than 50,000 square feet might be considered regional-serving, and so lead agencies should undertake an analysis to determine whether the project might increase or decrease VMT.

The Maverik Store will attract customers residing in Orland, but its primary customer base will be travelers already on Interstate 5. The project will provide fuel, convenience items and food service to travelers who simply drive off of and back to nearby I-5 to reach the project. The project's impacts on regional VMT would not be significant.

This conclusion is consistent with the OPR presumption that the VMT effects of locally serving retail uses of 50,000 sf or less may be considered to be less than significant. ***The Maverik C-Store / Fuel Sales / QSR's impact on regional VMT can be presumed to be less than significant under the OPR Locally Serving Retail criteria.***

Orland has not identified Low VMT generating areas of the community, and the Maverik project's VMT impact cannot be presumed to be less than significant under this criteria.

Multi-Modal Impacts

The significance of the project's Multi-Modal impacts is discussed in the text which follows.

Transit Service and Facilities. Glenn Ride operates on Newville Road across I-5 from the project. The project does not physically disrupt an existing transit service or facility nor interfere with implementation of a planned transit service or facility. The traffic operational analysis indicates that the project's traffic contribution to roads that are used by Glenn Ride would increase delay at intersections slightly but would be too small to result in increased travel time for busses that adversely effect on-time performance. Some customers and employees of the project could elect to use Glenn Ride, and as the closest stop is 2,500 feet away, the project would not likely result in increased transit ridership demands that result in passenger loads that exceed vehicle loading standards. As the project access is not adjacent to any transit facility, the project does not result in increased potential for safety conflicts involving transit vehicles and other modes of travel.

Conclusion. The project's impact to Transit Service and Facilities is not significant.

Bicycle Facilities. The project does not interfere with use of any existing bicycle facility. The project does not interfere with implementation of a bicycle facility identified in the *Glenn County Active Transportation Plan (2019)*. Some project employees and customers might elect to ride bicycles to the site, and those cyclists would share local roads with automobiles, and based on current observed use would not result in a significant increase in bicyclists on a facility that does not have adequate bicycle facilities, such that conflicts between bicyclists and other travel modes are likely to increase.

Conclusion. The project's impact to Bicycle Facilities is not significant.

Pedestrian Facilities. It is possible employees or customers of this project will elect to walk to and from the site to the other businesses and residences, either across Commerce Lane or across I-5. Sidewalks exist on the east side of Commerce Lane and a route is available across I-5 to sidewalks in Orland. To ensure pedestrian safety development on the project should be accompanied by sidewalks along the site frontage and a crosswalk across Commerce Lane to the Flying J site should be included at County Road 13 and at Newville Road. The project does not physically disrupt an existing pedestrian facility nor interfere with implementation of a planned pedestrian facility. The project does not result in an increased presence of vehicles and/or pedestrians on a facility that does not have adequate pedestrian facilities, such that conflicts between pedestrians and other travel modes are likely to increase.

Conclusion. With the identified crossings the project's impact to Pedestrian Facilities is not significant.

Roadway Design and Users. The project would not substantially increase hazards to vehicle safety due to increased traffic at locations with geometric design features (e.g., sharp curves or dangerous intersections). Regular site traffic and vehicles visiting the site during construction will be comprised of automobiles and trucks permitted under the California Vehicle Code (CVC) and no farm equipment is expected. The project does not introduce incompatible users (e.g., farm equipment) to a roadway or transportation facility not intended for those users.

Conclusion. The project's impact with regards to Roadway Design and Users is not significant.

Impacts to Safety on State Highways

US 101 ramps. The Maverik project will add traffic to I-5 and its ramps onto SR 32. As shown in Table of the traffic operational analysis, project traffic would not result in queues that extend back along the ramps to mainline I-5. However, project traffic would result in satisfaction of peak hour traffic signal warrants at the I-5 SB ramps / SR 32 intersection.

Conclusion. The project's impact with regards to safety of State facilities is significant.

Mitigation. Improvements to the SR 32 / I-5 SB ramp intersection are included in the City of Orland's Traffic Impact Fee program. A separate right turn lane should be constructed on the off-ramp, and with this improvement projected traffic volumes would no longer satisfy peak hour traffic signal warrants. Turn lane construction should accommodate truck turning requirements at the Newville Road connection, and if possible that work should incorporate lengthening of the westbound left turn lane approaching Commerce Lane.

The Maverick project should work with the City of Oroville to construct these improvements, and with these improvements the project's impact is less than significant.

PROJECT TRAFFIC OPERATIONAL EFFECTS

Traffic Operations Analysis

Traffic volumes associated with the project were estimated by superimposing project trips onto current background traffic. Figure 5 presents Existing Plus Project a.m. and p.m. peak hour traffic volumes at study locations.

Peak Hour Intersection Level of Service. Resulting Existing Plus Project peak hour LOS are presented in Table 11. The LOS calculation worksheets for Existing Plus Project conditions are presented in the Appendix.

As shown, the addition of project generated traffic results in longer delays at the study intersections on Newville Road and SR 32. As indicated in Table 11, the Levels of Service at one study area intersection will be changed to an unacceptable level by the project. However, while LOS D at the SR 32 / I-5 SB ramps intersection exceeds Caltrans goal, it satisfies the Orland General Plan standard. Under current CEQA guidelines exceeding the LOS C standard on Caltrans facilities is not a significant impact.

- **SR 32 (Newville Road) / I-5 SB ramps: LOS D**

Improvements to deliver LOS C were identified. At the SR 32 / I-5 SB ramps intersection widening the off ramp to provide a separate right turn lane would not deliver LOS C, and a traffic signal would be needed. Both of these improvements have been identified in other traffic studies as being needed under cumulative conditions and included in the City’s traffic impact fee program. Installation would produce conditions that satisfy minimum City General Plan LOS standards.

Traffic Signal Warrants. Projected traffic volumes at the Newville Road / Commerce Lane intersection and at the SR 32 / I-5 SB ramps intersection would satisfy peak hour traffic signal warrants with the addition of project traffic. A traffic signal is needed at the Newville Road / Commerce Lane intersection. However, at the I-5 SB ramps intersection, adding a southbound right turn lane would result in a combination of major and minor street approach volumes that did not satisfy warrants.

Traffic Safety Effects

The adequacy of the study area circulation system has been evaluated with regards to the need for left turn lane channelization on Commerce Lane (County Road HH) at the new site access and the adequacy of truck circulation and safety impacts.

Commerce Lane Left Turn Channelization. The project will result in automobiles turning into and out of the site via access on Commerce Lane (County Road HH). The City of Orland required that the Flying J respond to that activity on Commerce Lane (County Road HH) by widening the road to provide a separate southbound left turn lane at the County Road 13 intersection and by constructing its frontage improvements at a location that would permit the future development of a continuous Two-Way Left-Turn (TWLT) lane on Commerce Lane.

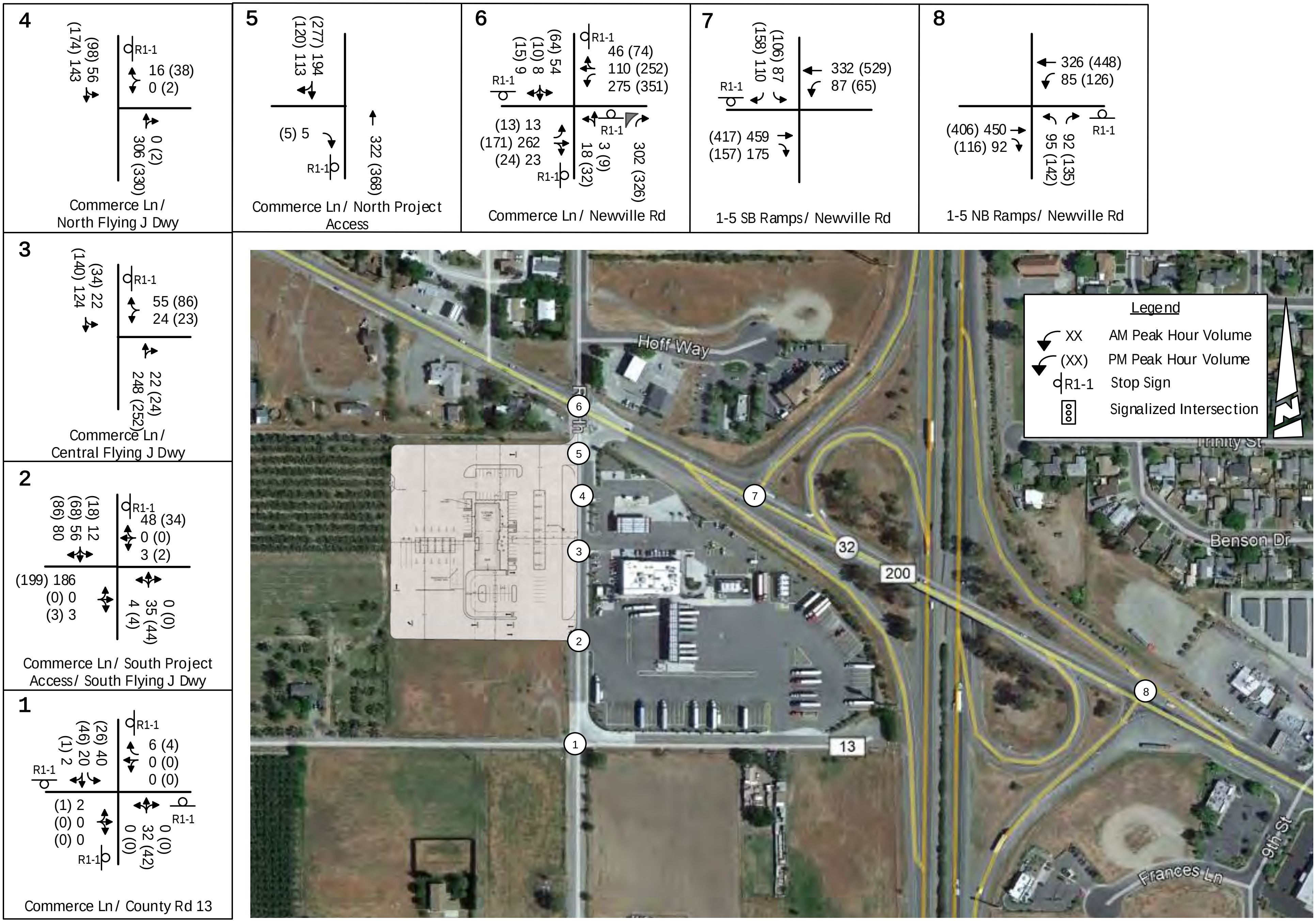
Development of the Maverik project will create similar turning movements, and projected traffic volumes create the need for a continuous TWLT lane on Commerce Lane from Newville Road to County Road 13. This lane can be provided with the standard frontage widening to the planned ultimate section that will be required by the City of Orland.

Truck Entrance Location / Design. The primary truck entrance is located immediately adjacent to the Newville Road intersection. This position permits large trucks to proceed directly into the site as they leave the westbound left turn lane at the intersection. When final improvements plans are completed it will be necessary to review the paths of entering trucks and following automobiles headed to other destination to ensure that following vehicles can quickly pass trucks proceeding slowly into the Maverik site, and widening of Commerce Lane in the area of the access may be needed. This work would be consistent with the improvement needed under cumulative conditions (i.e., Second SB travel lane from Newville Road to point opposite the northern Flying J access).

The primary truck entrance is intended to provide in and out right turn only access. This limitation will be important due to the proximity to the Newville Road intersection and due to potential conflicts between site traffic and motorists accessing the nearby Flying J driveway. A physical barrier to enforce the left turn prohibition will be needed. This feature may be installed in the center left turn lane on Commerce Lane, but the extent to which this feature affects access to the north Flying J driveway will need to be determined.

Westbound left turn lane on Newville Road at Commerce Lane. The westbound left turn lane approaching the Commerce Lane intersection is roughly 160 feet long. With the implementation of a traffic signal, the lane will need to be lengthened. This can be accomplished with minor widening on the north side of Newville Road by moving the striped bay taper and transition area to the east.

I-5 Off Ramp Queues. Table 12 identifies the length of queues on the I-5 off ramps. As indicated, the project does not cause the queues to extend to the point that traffic would reach mainline I-5 and cause a safety impact.



EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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TABLE 11 EXISTING PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE									
		AM Peak Hour				PM Peak Hour			
		Existing		EX plus Project		Existing		EX Plus Project	
Intersection	Control	Ave Delay (Sec/Veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (Sec/Veh)	LOS	Ave Delay (sec/veh)	LOS
Newville Road / County Road HH	All-Way Stop	12	B	20	C	14	B	23	C
Newville Road (SR 32) / SB I-5 ramps	All-Way Stop	12	B	20	C	14	B	**30**	**D**
Add SB Right Turn Lane				19	C			**29**	**D**
Add SB Right Turn Lane and Signal								29	C
Newville Road (SR 32) / NB I-5 ramps	All-Way Stop	13	B	18	C	14	B	20	C
County Road HH / Road 13	All-Way Stop	8	A	8	A	8	A	8	A

LOS = Level of Service
BOLD = values exceed Caltrans Level of Service C goal
Highlighted Values are significant impact

TABLE 12 EXISTING PLUS PROJECT I-5 OFF RAMP QUEUES											
			AM Peak Hour				PM Peak Hour				
			Existing		EX plus Project		Existing		EX Plus Project		
Intersection	Lane	Length	Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	Storage exceeded?
I-5 SB off ramp to SR 32	All	1,020	148	110	197	105	211	90	264	105	No
I-5 NB off ramp to SR 32	Right	1,080	92	75	92	75	135	80	135	225	No
	Left	160	46	75	95	85	89	65	142	110	No

LOS = Level of Service

CUMULATIVE CONDITIONS ANALYSIS

This report section describes the cumulative impacts of the proposed project within the context of two cumulative conditions. The first condition assumes occupancy of other approved projects in this area. The second longer term cumulative condition is based on the Orland General Plan EIR. The text which follows describes the approach used to forecast future "Cumulative" traffic volumes under "No Project" and "Plus Project" conditions.

Methodology / Assumptions – Existing Plus Approved Projects

The City of Orland has already considered and approved an application for development of the parcel on County Road 13 immediately south of the proposed Maverik project. An 80 room hotel is approved and was the subject of a traffic analysis conducted in 2016[1]. This project was forecast to generate 43 trips in the a.m. peak hour and 48 trips in the p.m. peak hour. These trips would be assigned to the local street system based on trip distribution assumptions that were similar to those identified for the proposed project.

The City of Orland also approved an application for a project on the west side of Commerce Lane south of County Road 13. That project involves a truck wash and roughly 2.8 acres of additional highway commercial uses and was the subject of a traffic study dated July 8, 2019[2]. The portion of that project that can proceed without further City consideration project was expected to generate 73 a.m. and 76 p.m. peak hour trips.

Methodology/Assumptions – Long Term

The Orland General Plan Update EIR traffic study included creation of a local traffic assignment model to address the overall effect of community development as well as through traffic increases on state highways. For this analysis this tool was reviewed to identify assumptions regarding regional through traffic and development on the subject site.

Land Use. The General Plan EIR traffic model assumed development would occur at various locations throughout Orland over the life of the General Plan. The following list summarizes land use development assumed in that study:

- 1,209 single family dwelling units,
- 192 multiple family dwelling units,
- 290,610 building square feet of retail commercial uses,
- 8.90 acres of office land use,
- 61.97 acres of light industrial / commercial use, and
- 23.31 acres of heavy industrial use.

[1] Traffic Impact Assessment for Hotel / Restaurant Near Flying J Truck Stop in Orland, CA, KDA, August 8, 2016.
[2] Traffic Impact Analysis for Orland Truck Wash / Commercial, KDA, July 8, 2019

The GPU EIR traffic study made assumptions regarding development in the area west of I-5. A total of 8.3 acres of commercial development was assumed in the area south of Newville Road and north of County Road 14. This development was assumed to be in the general area of the Flying J site. As noted above, the City of Orland considered and approved development on the west side of I-5 that with the Flying J would occupy acreage that was similar to but larger than the allocation made in the General Plan EIR.

For this analysis two land use scenarios have been evaluated:

1. No development on project site but development per the General Plan EIR elsewhere in Orland, including the hotel on County Road HH and the Orland Truck Wash project.
2. Same as #1 with the proposed Maverick project.

<u>**Existing Plus Approved Projects (EPAP) Plus Maverik Traffic Impacts**</u>

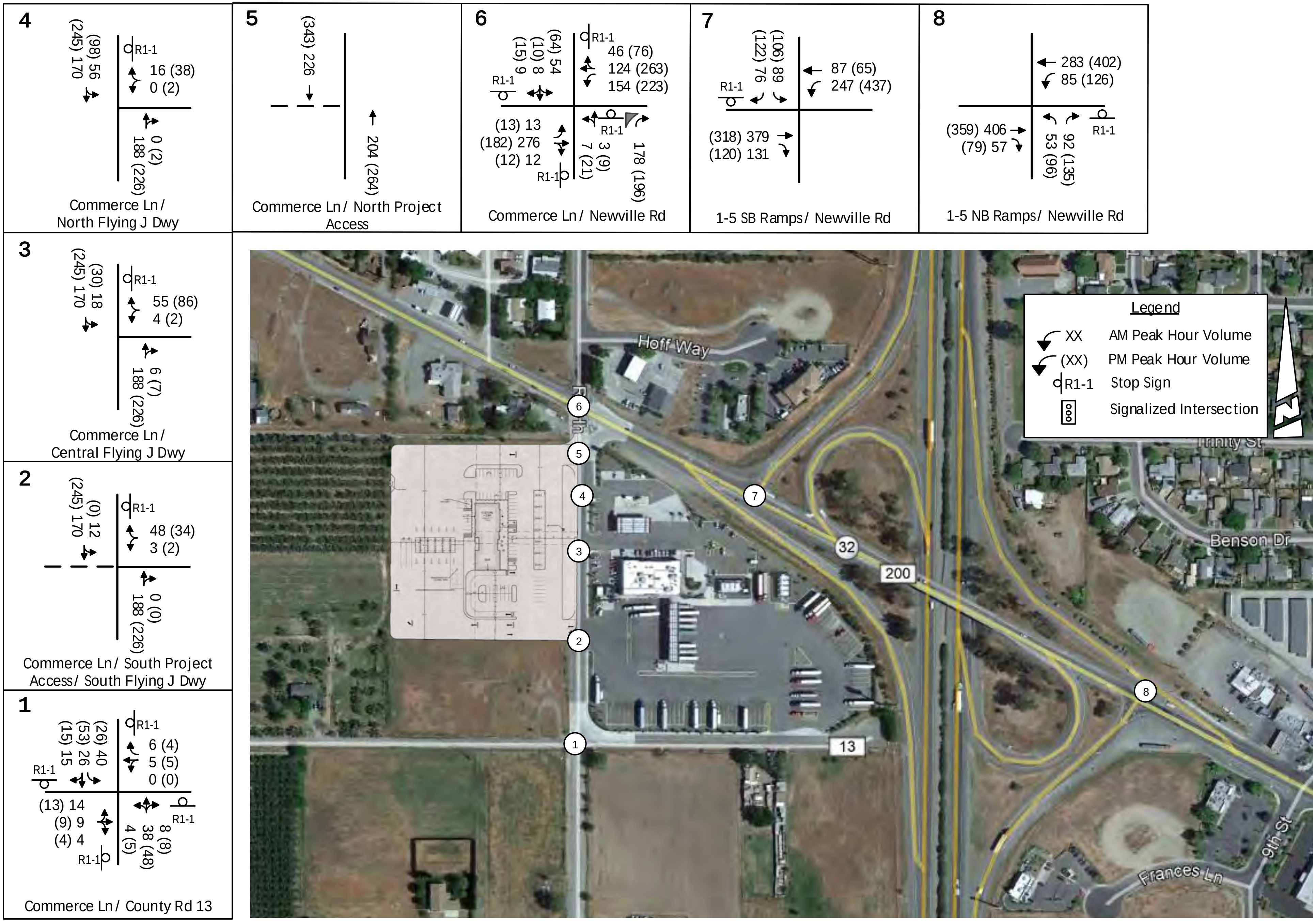
Traffic Volumes. Figure 6 illustrates short term future peak hour traffic volumes assuming that the two other approved projects are occupied. Figure 7 show volumes with the addition of the Maverik project traffic.

Intersection Level of Service. Table 13 presents the Levels of Service projected at study intersections if both the proposed and approved projects proceed. As shown the City's minimum LOS D standard will continue to be satisfied at all but one location. The Newville Road / I-5 SB ramp intersection is projected to operate at LOS E. Adding the southbound right turn lane would yield LOS E. A traffic signal with the right turn lane would yield LOS C.

I-5 Ramp Queues. Table 14 identifies the length of ramp queues anticipated with development of the Maverik project and other approved developments. As indicated no queues exceed the available storage distance.

Traffic Signal Warrants. The volume of traffic forecast at study intersections under EPAP Plus Project conditions was compared to MUTCD peak hour warrant requirements to see whether traffic signals will be justified. As indicated in Table 15, signal warrants are satisfied at the Newville Road / Commerce Lane intersection, and at the I-5 SB ramp intersection.

As noted previously in the discussion of intersection Levels of Service, funding for these traffic signals has been identified in the City traffic impact mitigation fee program.



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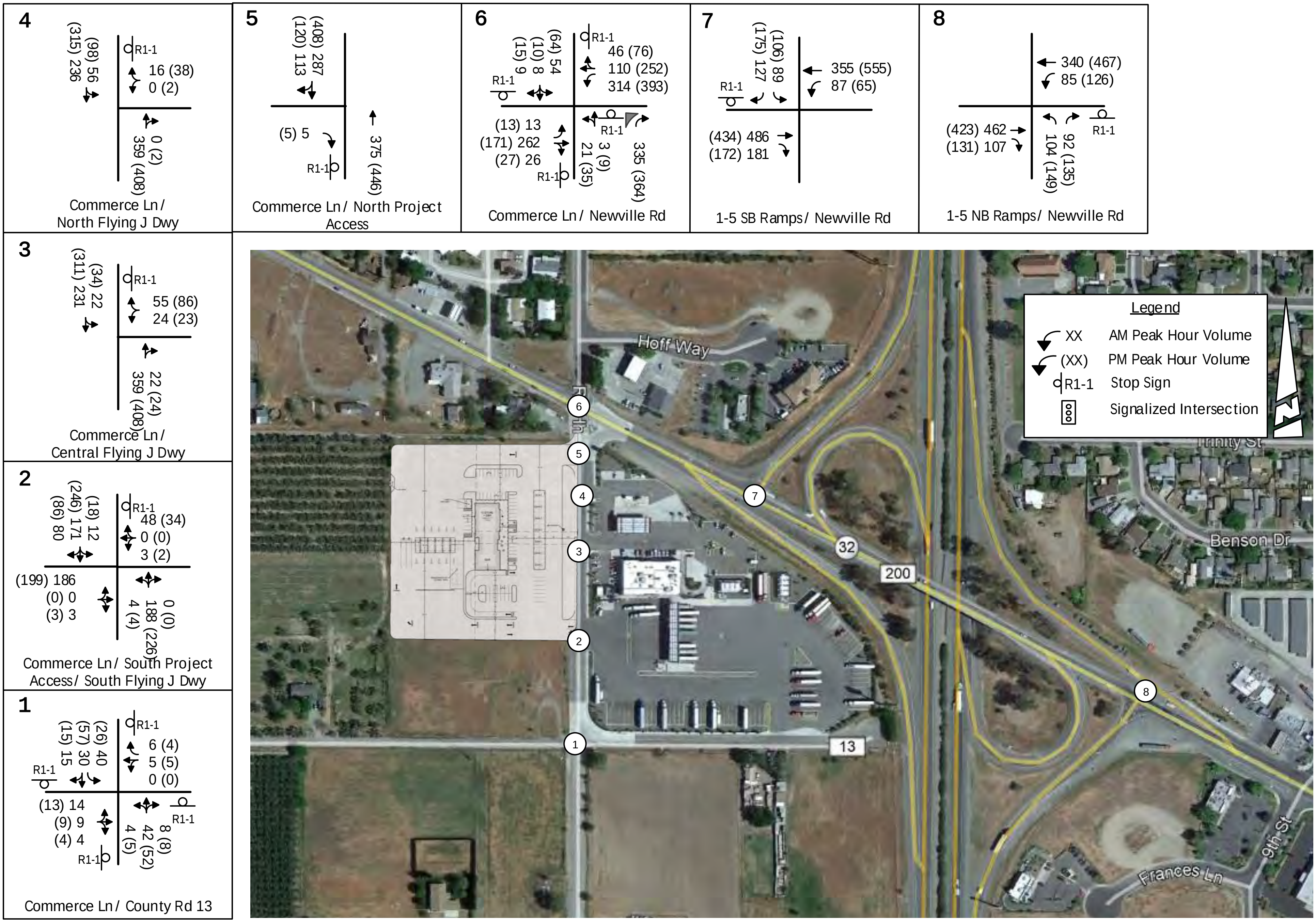
EXISTING PLUS APPROVED PROJECTS TRAFFIC VOLUMES AND LANE CONFIGURATIONS

1285-03 RA 10/20/2021



EPAP PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 13
EXISTING PLUS MAVERIK AND OTHER APPROVED PROJECTS
PEAK HOUR INTERSECTION LEVELS OF SERVICE

		AM Peak Hour				PM Peak Hour			
		Existing Plus Maverik		EX Plus Maverik and Approved Projects		Existing Plus Maverik		EX Plus Maverik and Approved Projects	
Intersection	**Control**	**Ave Delay (Sec/Veh)**	**LOS**	**Ave Delay (sec/veh)**	**LOS**	**Ave Delay (Sec/Veh)**	**LOS**	**Ave Delay (sec/veh)**	**LOS**
Newville Road / County Road HH	All-Way Stop	20	C	27	D	23	C	32	D
	Traffic signal	33	C	35	D	30	C	30	C
Newville Road (SR 32) / SB I-5 ramps	All-Way Stop	20	C	24	C	**30**	**D**	**41**	**E**
Add SB Right Turn Lane		19	C			**29**	**D**	**36**	**E**
Add SB Right Turn Lane and Signal				28	C	29	C	29	C
Newville Road (SR 32) / NB I-5 ramps	All-Way Stop	18	C	19	C	20	C	23	C
County Road HH /Road 13	All-Way Stop	8	A	8	A	8	A	8	A

LOS = Level of Service
BOLD = values exceed Caltrans Level of Service C
Conditions exceed City of Orland LOS D policy

TABLE 14
EXISTING PLUS MAVERIK AND OTHER PROJECTS I-5 OFF RAMP QUEUES

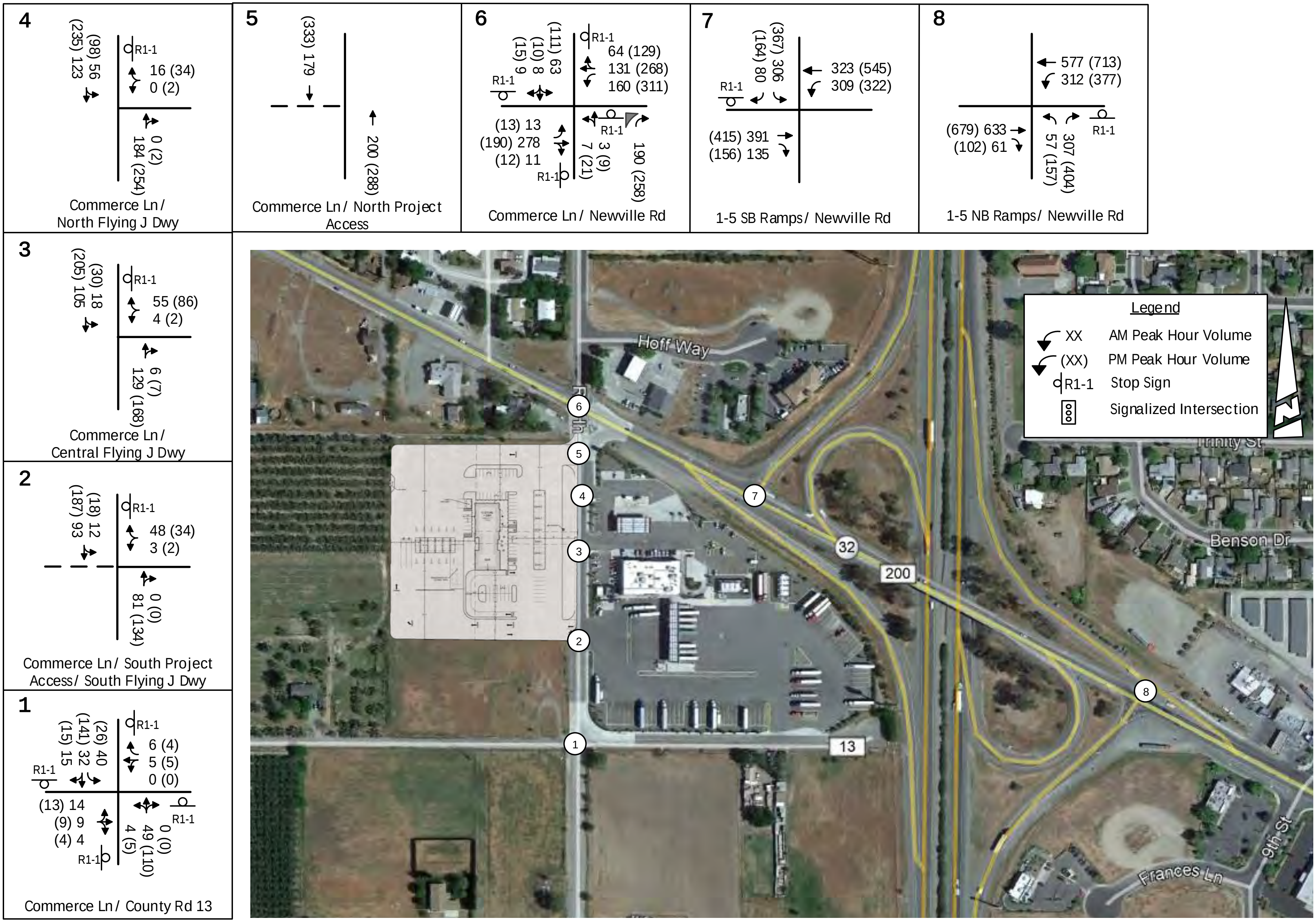
Intersection	Lane	Length	AM Peak Hour				PM Peak Hour				Storage exceeded?
			Existing Plus Maverik		EX Plus Maverik and Approved Projects		Existing Plus Maverik		EX Plus Maverik and Approved Projects		
			Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	Volume (vph)	Queue (feet)	
I-5 SB off ramp to SR 32	All	1,020	197	105	216	110	264	105	281	125	No
I-5 NB off ramp to SR 32	Right	1,080	92	75	92	70	135	225	135	245	No
	Left	160	95	85	104	75	142	110	149	125	No

TABLE 15 EXISTING PLUS MAVERIK AND APPROVED PROJECTS TRAFFIC SIGNAL WARRANTS						
Location	**AM Peak Hour**			**PM Peak Hour**		
	No Project	**With Maverik**	**With Maverik and Other Projects**	**No Project**	**With Maverick**	**With Maverik and Other Projects**
Newville Rd / Commerce Lane (County Rd HH)	No	**Yes**	**Yes**	No	**Yes**	**Yes**
Newville Rd / SB I-5 ramps	No	No	No	No	**Yes**	**Yes**
With SB right turn lane	-	-	No	-	No	No
Newville Rd / NB I-5 ramps	No	No	No	No	No	No
County Rd HH / Road 13	No	No	No	No	No	No

Long Term Cumulative Impacts

Traffic Volume Forecasts. Traffic volume forecasts were created for the two cumulative scenarios using the General Plan EIR traffic model. The model was modified to make use of current traffic volumes in the area of the project and address the communitywide development of other land uses. Figure 8 presents the Cumulative without Maverik conditions at study area intersections, while Figure 9 presents the peak hour volumes under Cumulative Plus Maverik Project conditions.

These figures also illustrate assumed intersection geometry. As shown, while the City's traffic impact fee program includes funds for improvements to study intersections, no improvements have been assumed in order to determine the extent of project traffic effects. Those funded improvements are presented as mitigations or alternative operational improvements.



CUMULATIVE TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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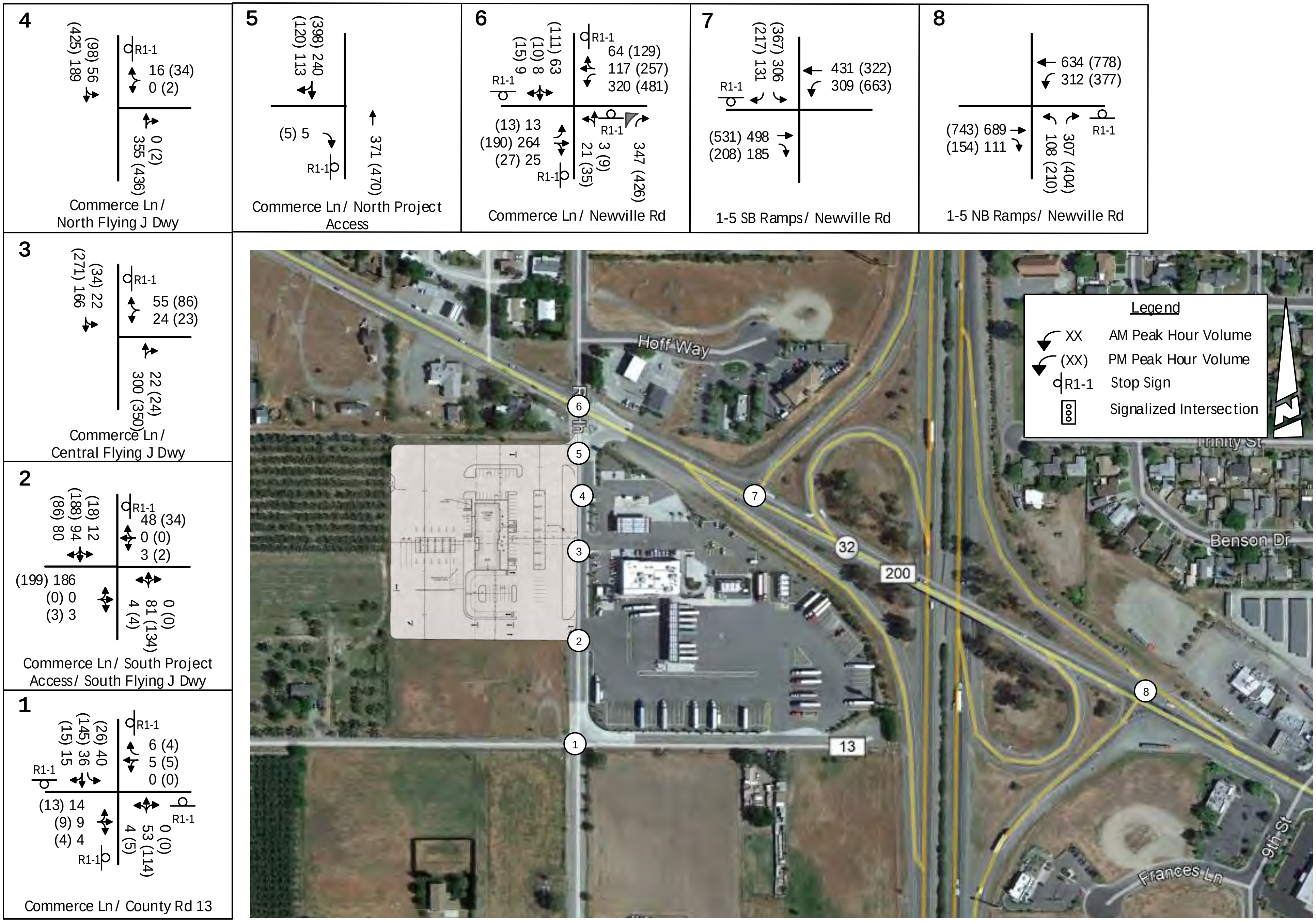
1285-03 RA 10/20/2021

figure 8



CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 9

Intersection Levels of Service. Projected Levels of Service at study area intersections with and without the Maverik project assuming no improvements are made as noted in Table 16. As indicated the two un-signalized intersections on SR 32 at the I-5 ramps intersections are projected to operate with Levels of Service which exceed the City's LOS D standard with and without the proposed project if improvements are not made. The project's trips will exacerbate conditions that are forecast to be deficient, and the project's cumulative effect is significant at these locations.

At the Newville Road / SB I-5 ramps intersection, a traffic signal with southbound right turn lane would operate at LOS C with and without the project. A traffic signal at this location is currently included in the City traffic impact mitigation fee program.

Similarly, the Newville Road (SR 32) / NB I-5 ramps intersection would operate at LOS C with a traffic signal. A traffic signal at this location is currently included in the City's traffic impact mitigation fee program.

As indicated, the existing configuration of the Newville Road / Commerce Lane intersection would exceed the City's LOS D standard in the Cumulative plus Project conditions. A traffic signal would operate at LOS C without the Maverik project and LOS D in the a.m. peak hour with the project. A traffic signal at this location is currently included in the City traffic impact mitigation fee program.

The Levels of Service occurring at the County Road HH / County Road 13 intersection are projected to be LOS B or better with or without the project which satisfies the City's minimum LOS D standard.

TABLE 16
LONG TERM CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Control	AM Peak Hour				PM Peak Hour			
		Cumulative No Project		Cumulative Plus Maverik		Cumulative No Project		Cumulative Plus Maverik	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Newville Road / County Road HH	All-Way Stop	14	C	27	D	23	C	**70**	**F**
	Signal	34	C	37	D	27	C	32	C
Newville Road (SR 32) / SB I-5 ramps	All-Way Stop	**29**	**D**	**77**	**F**	**89**	**F**	**164**	**F**
	Signal w SB right	25	C	29	C	25	C	34	C
Newville Road (SR 32) / NB I-5 ramps	All-Way Stop	**118**	**F**	**161**	**F**	**174**	**F**	**213**	**F**
	Signal	26	C	26	C	25	C	26	C
Commerce Lane (County Road HH) / County Road 13	All-Way Stop	9	A	9	A	9	A	9	A

LOS = Level of Service
BOLD = values exceed Caltrans Level of Service C
Values exceed General Plan LOS D

Traffic Signal Warrants. The volume of traffic forecast at study intersections under Cumulative and Cumulative plus Project conditions was compared to MUTCD peak hour warrant requirements to see whether traffic signals will be justified in the future. As indicated in Table 17, the Newville Road / Commerce Lane (County Road HH) intersection carries volumes that satisfy peak hour warrants in the a.m. and p.m. peak hour. Signal warrants are satisfied at the two I-5 ramp intersections with and without the project. None of the intersections on County Road HH south of Newville Road carry volumes that satisfy peak hour warrants.

As noted previously in the discussion of intersection Levels of Service, funding for these traffic signals has been identified in the City traffic impact mitigation fee program.

TABLE 17
CUMULATIVE TRAFFIC SIGNAL WARRANTS

	AM Peak Hour		PM Peak Hour	
Location	**No Project**	**With Project**	**No Project**	**With Project**
Newville Rd / Commerce Lane (County Rd HH)	No	Yes	No	Yes
Newville Rd / SB I-5 ramps	Yes	Yes	Yes	Yes
Newville Rd (SR 32) / NB I-5 ramps	Yes	Yes	Yes	Yes
County Rd HH / Road 13 intersection	No	No	No	No

Roadway Segment Levels of Service. Table 18 identifies projected daily traffic volumes on study area roads with and without the proposed project and uses that information to determine the planning level LOS for each facility. Because a comprehensive analysis of existing daily traffic volumes was not performed, this analysis makes use of data from the Flying J DEIR traffic study. As noted earlier the City's minimum Level of Service based on daily volume is LOS C.

No Project Conditions. As shown, if the proposed project does not proceed, then the long-term background daily traffic volume on SR 32 will exceed the LOS C threshold between the SB I-5 ramps and the NB I-5 ramps. In addition, the daily volume on Commerce lane (County Road HH) would exceed the LOS C threshold for a 2 lane Minor Collector. Improvements to a Major Collector standard is needed, and this improvement was acknowledged in the Flying J DEIR.

Cumulative Plus Project Conditions. The addition of trips generated by the project will increase the cumulative traffic volume on study area streets. One street that was not deficient without the project would now operate with Level of Service that exceeds the LOS C standard.

The volume of traffic on Commerce Lane south of Newville Road to the site access would exceed the LOS C standard for a two-lane Minor Collector, and for a short distance would exceed the LOS C standard for a two-lane Major Collector. The volume of traffic on SR 32 over I-5 would be indicative of LOS F, and the project would exacerbate the deficient "No Project" conditions.

Measures to improve the Level of Service on study area roadway segments have been evaluated, however, it is important to note that in urban areas the flow of traffic through major intersections is generally the controlling factor for the quality of traffic flow. Thus, if the intersections can be made to operate with an adequate Level of Service, the intermediate roadway segments typically perform adequately even though the planning level LOS suggests otherwise. This conclusion has been made in previous traffic studies in Orland, including the Flying J traffic analysis.

Between the southbound and northbound I-5 ramps the structure over I-5 would theoretically have to be widened to deliver LOS C based on City thresholds. This level of improvement has not been contemplated in the City General Plan or in the SR 32 TCR. Modifications to the SR 32 structure over I-80 are not included in the City's traffic impact mitigation fee program.

To achieve LOS C on Commerce Lane (County Road HH) a second southbound lane on a Major Collector street would be needed in the area of the north driveway from Newville Road to a point roughly opposite the northern Flying J driveway. South of that point a major collector section is needed.

TABLE 18
CUMULATIVE PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

Street	From	To	Class	Lanes	Cumulative with Approved Project		Cumulative with Approved Hotel – Restaurant Plus Project		
							Daily Volume		
					Daily Volume	Level of Service	Project Only	Total	Level of Service
Newville Road	Co Rd HH	I-5 SB ramps	Arterial	2+	15,305	B	4,395	19,200	B
SR 32	I-5 SB ramps	I-5 NB ramps		2	**18,305**	**F**	3,040	**21,345**	**F**
County Rd HH Commerce Lane	Newville Road	North Maverik Access	Minor Col	2	**8,825**	**F**	4,280	**13,100**	**F**
			Major Col	2		B		**13,100**	**F**
			Major Col	2+				13,100	B
	North Access	Flying J North	Minor Col	2	8,825	**F**	3,335	**12,160**	**F**
			Major Col	2		B		**12,160**	**E**
			Major Col	2+		-		12,160	B
	Flying J North	South Maverik Access	Minor Col	2	5,900	C	3,335	**9,235**	**F**
			Major Col	2		A		9,235	C
	County Road 13	County Road 15	Minor Col	2	2,705	A	110	2,815	A

Bold values exceed the City of Orland LOS C threshold for daily volume based Level of Service.
2+ indicates the addition of a second eastbound lane dropping onto the southbound on-ramp

FINDINGS/ MITIGATION MEASURES / IMPROVEMENT RECOMMENDATIONS

The purpose of this section is to summarize significant project impacts or traffic operational effects and to describe measures which will reduce those impacts to a less than significant level, or address operational problems Based on City of Orland General Plan policy, "unacceptable" conditions are identified as those which exceed the City of Orland's Level of Service D threshold at intersections during peak hours (i.e., LOS E or F) or exceed the LOS C threshold on roadway segments based on daily volume (i.e., LOS D, E or F).

The feasibility of completing identified improvements has been discussed, and the extent to which funding is available to complete cumulative mitigation measures has been evaluated. The proposed project's fair share of cumulative mitigation measures follows as Table 19. Two alternative approaches to the calculation are presented assuming either the project's trips as a percentage of all traffic, or, alternatively as a percentage of future new traffic. Because Pilot Flying J was also conditioned to pay its fair share, the latter calculation is based on the difference between cumulative volumes and the original "existing" condition before Pilot Flying J was opened.

Current Conditions

Currently the study intersections addressed herein operate with Levels of Service which satisfy the City's LOS D minimum and peak hour traffic signal warrants are not satisfied. Therefore, no capacity improvements are needed in this area of Orland at this time.

Existing Plus Maverik Project Alone Conditions

CEQA Impacts. Two CEQA Transportation impacts has been identified for Existing Plus Project conditions relating to pedestrian circulation and to safety on State Highways.

Impact 1: Impact to Pedestrian Safety. Development of the project will result in pedestrians walking between the site and the balance of the City of Orland east of I-5. Because no crossing exists along Commerce Lane (County Road HH), pedestrians will be crossing County Road HH at various locations. This is a significant safety impact.

Mitigation 1: Create Safe Pedestrian Crossings. The project proponents shall provide a crosswalk at the Newville Road / Commerce Lane intersection and at the County Road HH / County Road 13 intersection. Project proponents shall install sidewalks along the project frontage as development proceeds. With this improvement the impact to pedestrians is less than significant.

Impact 2: Impact to Safety at the Newville Road (SR 32) / I-5 SB ramps intersection. Development of the project will result in traffic volumes that satisfy peak hour traffic signal warrants. This is a significant safety impact.

Mitigation 2: Contribute to the Cost of Adding a right turn lane on the I-5 SB off ramp. Adding a separate right turn lane on the off-ramp would result in traffic volumes that do not satisfy peak hour traffic signal warrants. This improvement has been identified previously in other traffic studies as part of work to address cumulative traffic conditions, and the City of Orland has been collecting contributions towards cumulative improvements from other development projects. Implementation will require work within the Caltrans right of way and an encroachment permit would be required.

The project proponents shall contribute their fair share to the cost of adding a right turn lane on the off ramp and shall support the City of Orland in implementing the right turn lane. With this mitigation this impact is not significant.

Traffic Operational Effects. While not a CEQA impact, at two locations the project results in conditions that do not satisfy minimum City of Orland General Plan standards for Level of Service or results in satisfaction of peak hour traffic signal warrants at intersection.

Traffic Operational Effect 1: Satisfaction of peak hour traffic signal warrants at the Newville Road / Commerce Lane intersection. A traffic signal is justified with development of the project. A traffic signal has been identified in previous traffic studies for projects in Orland as a mitigation for Cumulative traffic impacts, and the City has been collecting fair share contributions towards the cost of a traffic signal from other projects.

Installing a traffic signal creates the need for intersection improvements. A crosswalk is needed to address pedestrian impacts. The SE corner of the intersection should be modified to separate traffic turning into the site from left turning vehicles that continue. This work would be consistent with the need to add a second southbound lane to achieve the City's LOS C standard under cumulative conditions. The traffic signal should also be accompanied by a raised median treatment that limits the northern project driveaway to right turns in and out only. The traffic signal should be accompanied by lengthening the existing westbound left turn lane on Newville Road.

Traffic Operational Effect 2: Interaction between with project traffic and Flying J traffic on Commerce Lane. Development of the project will result in conflicts between project traffic and vehicles accessing the Flying J truck stop. A continuous TWLT lane should be constructed between County Road 13 and Newville Road as part of project frontage improvements.

<u>**Existing Plus Maverik and other Approved Project Conditions.**</u>

Traffic Operational Effect 3: LOS E at the Newville Road (SR 32) / I-5 SB ramps intersection. Development of the project and other approved projects will result in LOS E conditions at the intersection. Adding the SB right turn lane would reduce delays somewhat but would not result in LOS D. A traffic signal is needed to satisfy the City's minimum LOS D standard. This improvement has been identified previously in other traffic studies as part of work to address cumulative traffic conditions, and the City of Orland has been collecting contributions towards cumulative improvements from other development projects. Implementation will require work within the Caltrans right of way, and an encroachment permit would be required. Because this improvement is not needed solely as a result of this project, the project proponents should contribute the project's fair share to the cost of a traffic signal by paying city impact fees.

Cumulative Plus Project Impacts / Traffic Effects

Traffic Operational Effect 4: Level of Service at Newville Road / NB I-5 ramps intersection. The addition of project generated automobile and truck traffic and cumulative background traffic resulting from other development and through traffic on SR 32 will result in the off ramp operating with LOS F conditions. As LOS F exceeds the City's minimum LOS D standard.

A traffic signal is needed. This improvement would result in Level of Service C conditions, which satisfy the City's minimum LOS D standard. Implementation will require work within the Caltrans right of way and an encroachment permit would be required. This improvement is identified in the City General Plan EIR and is in the City's traffic impact mitigation fee program. Because this improvement is not required solely as a result of the project, project proponents should contribute their fair share to the cost of this improvement.

Traffic Operational Effect 5: Level of Service on Newville Road (SR 32) between SB I-5 and NB I-5 ramps based on Daily Traffic Volume. The addition of project generated automobile and truck traffic and cumulative background traffic resulting from other development in Orland will result in total daily traffic volumes on Newville Road that exceed the LOS C standard for a two lane arterial street.

To deliver LOS C conditions it would be necessary to widen SR 32 to provide additional lanes on the crossing structure. However, this improvement is not included in the General Plan EIR, or the City's traffic impact fee program. Widening the structure is not identified in the SR 32 TCR. Thus, there is no identified funding mechanism for a project of this magnitude and is unreasonable to expect that local development in Orland would be capable of funding this improvement. As noted earlier, short roadway segments can carry high traffic volumes but operate adequately when the intersections have the capacity to handle peak period traffic volumes at a good Level of Service. This is the case with the intersections on SR 32 which are expected to operate at LOS C or better with identified improvements. Coordinating the operation of the study area signals with the operation of the signals further east on SR 32 will be appropriate. Implementation will require work within the Caltrans right of way and an encroachment permit would be required. Because this improvement is not required solely as a result of the project, project proponents should contribute their fair share to the cost of this improvement.

Traffic Operational Effect 6: LOS F on Commerce Lane. The addition of project traffic would result in Commerce Lane carrying daily volumes in excess of the LOS C standard south of Newville Road. To provide LOS C the roadway would need to be improved to the City's Major Collector section and a second southbound lane would be needed from Newville Road to a point opposite the northern Flying J driveway. This requirement should be incorporated into the project plan.

Fair Share Calculation

The project's fair share of the cost of improvements is identified in Table 19. As shown, because the City has been collecting funds from development since the Flying J Stop was approved, the new fait share calculation is based on the traffic volume existing at that time.

TABLE 19
FAIR SHARE CALCULATION

	Traffic Volume				Fair Share	
	A	B	C	D		
Location	Existing	Pre Pilot Flying J*	Project Only	Cumulative Plus Project	Percent of all Traffic (C/D)	Percent of New Traffic C/ (D-B)
Based on PM Peak Hour Traffic						
Newville Rd / County Rd HH	996	660	345	1,692	20.4%	33.4%
Newville Rd (SR 32) / SB I-5 ramps	1,067	771	339	2,308	14.7%	22.1%
Newville Rd (SR 32) / NB I-5 ramps	1,119	857	234	2,666	8.8%	12.9%

(C/D) is fair share based on all future traffic
(C/ (D-B) > is fair share as a percentage of "new" future traffic only, including Pilot Flying J contribution
(*) source: *Traffic Impact Analysis for Pilot Flying J Travel Center and Annexation, KDA, 1/7/2015*

APPENDICES

1285-03

Prepared by National Data & Surveying Services

Commerce Ln & Newville Rd

Peak Hour Turning Movement Count

ID: 21-100017-001
City: Orland

Day: Thursday
Date: 09/02/2021

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Commerce Ln — SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	9	8	54	0	62
NOON	0	0	0	0	0
PM	15	10	64	0	96
Bikes	0	0	0	0	

Newville Rd — EASTBOUND

	AM	NOON	PM	Bikes
Exit	117	0	276	
U-Turn	0	0	0	0
Left	13	0	13	0
Thru	276	0	182	0
Right	9	0	9	0

Newville Rd — WESTBOUND

	PM	NOON	AM	Bikes
Right	74	0	46	0
Thru	243	0	104	0
Left	180	0	114	0
U-Turn	1	0	1	0
Exit	405	0	476	

Commerce Ln — NORTHBOUND

	Exit	U-Turn	Left	Thru	Right
PM	199	0	18	9	158
NOON	0	0	0	0	0
AM	131	0	4	3	145
Bikes		0	0	0	0

CONTROL

4-Way Stop

	AM	NOON	PM
TEV	786	0	976
PHF	0.86		0.96

Cars (AM)

Approach	Right	Thru	Left
SB	6	9	51
EB	9	262	12
WB	45	99	74
NB	90	3	4

HT (AM)

Approach	Right	Thru	Left
SB	0	2	3
EB	0	14	1
WB	1	5	40
NB	55	0	0

Cars (NOON)

All movements: N/A

HT (NOON)

All movements: N/A

Cars (PM)

Approach	Right	Thru	Left
SB	15	10	61
EB	9	181	13
WB	72	238	139
NB	121	9	17

HT (PM)

Approach	Right	Thru	Left
SB	0	0	3
EB	0	1	0
WB	2	5	41
NB	37	0	1

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (west half)	0	0	0
North (east half)	0	0	0
West (north half)	0	0	0
West (south half)	0	0	0
East (north half)	0	0	0
East (south half)	0	0	0
South (west half)	0	0	2
South (east half)	0	0	1
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Newville Rd
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-001
Date: 9/2/2021

Total

NS/EW Streets:	Commerce Ln				Commerce Ln				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	33	0	13	0	4	0	2	25	4	0	23	8	9	0	123
7:15 AM	2	2	28	0	14	1	1	0	2	57	0	0	28	25	11	0	171
7:30 AM	0	0	39	0	13	2	3	0	5	58	3	0	32	14	10	1	180
7:45 AM	1	1	40	0	14	4	3	0	4	84	6	0	27	30	15	0	229
8:00 AM	1	0	38	0	13	1	2	0	2	77	0	0	27	35	10	0	206
8:15 AM	1	1	30	0	6	1	2	0	3	27	1	0	27	50	9	0	158
8:30 AM	2	1	32	0	10	1	0	0	3	23	1	0	20	21	8	0	122
8:45 AM	3	0	31	0	14	1	2	0	2	42	5	0	32	16	11	0	159
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	5	271	0	97	11	17	0	23	393	20	0	216	199	83	1	1348
APPROACH %'s :	4.17%	1.74%	94.10%	0.00%	77.60%	8.80%	13.60%	0.00%	5.28%	90.14%	4.59%	0.00%	43.29%	39.88%	16.63%	0.20%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	3	145	0	54	8	9	0	13	276	9	0	114	104	46	1	786
PEAK HR FACTOR :	0.500	0.375	0.906	0.000	0.964	0.500	0.750	0.000	0.650	0.821	0.375	0.000	0.891	0.743	0.767	0.250	0.858
	0.905				0.845				0.793				0.920				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	4	47	0	23	3	0	0	2	47	5	0	39	57	21	0	254
4:15 PM	8	1	36	0	13	3	2	0	1	32	4	0	39	54	19	1	213
4:30 PM	6	2	37	0	16	2	4	0	2	30	5	0	35	56	24	1	220
4:45 PM	3	2	41	0	17	3	2	0	3	47	3	0	48	63	23	0	255
5:00 PM	6	0	35	0	17	4	6	0	5	39	1	0	41	58	20	0	232
5:15 PM	4	1	41	0	16	1	6	0	2	51	1	0	48	54	14	0	239
5:30 PM	5	6	41	0	14	2	1	0	3	45	4	0	43	68	17	1	250
5:45 PM	4	1	37	0	12	1	5	0	3	38	1	0	49	52	15	0	218
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	42	17	315	0	128	19	26	0	21	329	24	0	342	462	153	3	1881
APPROACH %'s :	11.23%	4.55%	84.22%	0.00%	73.99%	10.98%	15.03%	0.00%	5.61%	87.97%	6.42%	0.00%	35.63%	48.13%	15.94%	0.31%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	18	9	158	0	64	10	15	0	13	182	9	0	180	243	74	1	976
PEAK HR FACTOR :	0.750	0.375	0.963	0.000	0.941	0.625	0.625	0.000	0.650	0.892	0.563	0.000	0.938	0.893	0.804	0.250	0.957
	0.889				0.824				0.944				0.929				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Newville Rd
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-001
Date: 9/2/2021

Cars

NS/EW Streets:	Commerce Ln				Commerce Ln				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	18	0	13	0	4	0	2	25	4	0	11	5	9	0	93
7:15 AM	2	2	16	0	13	1	1	0	2	54	0	0	15	23	11	0	140
7:30 AM	0	0	21	0	13	2	3	0	4	53	3	0	19	12	9	1	140
7:45 AM	1	1	33	0	12	2	3	0	4	82	6	0	19	29	15	0	207
8:00 AM	1	0	20	0	13	1	2	0	2	73	0	0	21	35	10	0	178
8:15 AM	1	1	21	0	6	1	2	0	3	26	1	0	18	45	8	0	133
8:30 AM	2	1	22	0	9	1	0	0	3	20	1	0	16	17	8	0	100
8:45 AM	3	0	25	0	11	1	2	0	1	41	4	0	19	16	10	0	133
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	5	176	0	90	9	17	0	21	374	19	0	138	182	80	1	1124
APPROACH %'s :	6.22%	2.59%	91.19%	0.00%	77.59%	7.76%	14.66%	0.00%	5.07%	90.34%	4.59%	0.00%	34.41%	45.39%	19.95%	0.25%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	3	90	0	51	6	9	0	12	262	9	0	74	99	45	1	665
PEAK HR FACTOR :	0.50	0.375	0.682	0.000	0.981	0.750	0.750	0.000	0.750	0.799	0.375	0.000	0.881	0.707	0.750	0.250	0.803
	0.693				0.917				0.769				0.830				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	4	31	0	22	3	0	0	2	46	4	0	27	54	20	0	219
4:15 PM	8	1	23	0	13	3	2	0	1	32	4	0	32	54	19	1	193
4:30 PM	6	2	31	0	16	2	4	0	2	30	5	0	28	55	24	1	206
4:45 PM	3	2	29	0	16	3	2	0	3	47	3	0	36	62	22	0	228
5:00 PM	5	0	25	0	16	4	6	0	5	39	1	0	29	56	20	0	206
5:15 PM	4	1	32	0	16	1	6	0	2	51	1	0	40	52	13	0	219
5:30 PM	5	6	35	0	13	2	1	0	3	44	4	0	34	68	17	1	233
5:45 PM	4	1	29	0	12	1	5	0	3	38	1	0	43	51	14	0	202
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	17	235	0	124	19	26	0	21	327	23	0	269	452	149	3	1706
APPROACH %'s :	13.99%	5.80%	80.20%	0.00%	73.37%	11.24%	15.38%	0.00%	5.66%	88.14%	6.20%	0.00%	30.81%	51.78%	17.07%	0.34%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	17	9	121	0	61	10	15	0	13	181	9	0	139	238	72	1	886
PEAK HR FACTOR :	0.85	0.375	0.864	0.000	0.953	0.625	0.625	0.000	0.650	0.887	0.563	0.000	0.869	0.875	0.818	0.250	0.951
	0.799				0.827				0.940				0.938				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Newville Rd
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-001
Date: 9/2/2021

Bikes

NS/EW Streets:	Commerce Ln				Commerce Ln				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%													
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
		0.250															

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Newville Rd
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-001
Date: 9/2/2021

HT

NS/EW Streets:	Commerce Ln				Commerce Ln				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	15	0	0	0	0	0	0	0	0	0	12	3	0	0	30
7:15 AM	0	0	12	0	1	0	0	0	0	3	0	0	13	2	0	0	31
7:30 AM	0	0	18	0	0	0	0	0	1	5	0	0	13	2	1	0	40
7:45 AM	0	0	7	0	2	2	0	0	0	2	0	0	8	1	0	0	22
8:00 AM	0	0	18	0	0	0	0	0	0	4	0	0	6	0	0	0	28
8:15 AM	0	0	9	0	0	0	0	0	0	1	0	0	9	5	1	0	25
8:30 AM	0	0	10	0	1	0	0	0	0	3	0	0	4	4	0	0	22
8:45 AM	0	0	6	0	3	0	0	0	1	1	1	0	13	0	1	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	95	0	7	2	0	0	2	19	1	0	78	17	3	0	224
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	77.78%	22.22%	0.00%	0.00%	9.09%	86.36%	4.55%	0.00%	79.59%	17.35%	3.06%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	55	0	3	2	0	0	1	14	0	0	40	5	1	0	121
PEAK HR FACTOR :	0.000	0.000	0.764	0.000	0.375	0.250	0.000	0.000	0.250	0.700	0.000	0.000	0.769	0.625	0.250	0.000	0.756
	0.764				0.313				0.625				0.719				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	16	0	1	0	0	0	0	1	1	0	12	3	1	0	35
4:15 PM	0	0	13	0	0	0	0	0	0	0	0	0	7	0	0	0	20
4:30 PM	0	0	6	0	0	0	0	0	0	0	0	0	7	1	0	0	14
4:45 PM	0	0	12	0	1	0	0	0	0	0	0	0	12	1	1	0	27
5:00 PM	1	0	10	0	1	0	0	0	0	0	0	0	12	2	0	0	26
5:15 PM	0	0	9	0	0	0	0	0	0	0	0	0	8	2	1	0	20
5:30 PM	0	0	6	0	1	0	0	0	0	1	0	0	9	0	0	0	17
5:45 PM	0	0	8	0	0	0	0	0	0	0	0	0	6	1	1	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	80	0	4	0	0	0	0	2	1	0	73	10	4	0	175
APPROACH %'s :	1.23%	0.00%	98.77%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	83.91%	11.49%	4.60%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	0	37	0	3	0	0	0	0	1	0	0	41	5	2	0	90
PEAK HR FACTOR :	0.25	0.000	0.771	0.000	0.750	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.854	0.625	0.500	0.000	0.833
	0.792				0.750				0.250				0.857				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Newville Rd
City: Orland

Project ID: 21-100017-001
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	Commerce Ln		Commerce Ln		Newville Rd		Newville Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	1	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	1	0	0	0	2
APPROACH %'s :	100.00%	0.00%			100.00%	0.00%			
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	2	0	0	2
4:15 PM	0	1	0	1	0	0	0	0	2
4:30 PM	0	0	1	1	0	0	1	0	3
4:45 PM	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	1	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	3	3	0	2	1	0	10
APPROACH %'s :	0.00%	100.00%	50.00%	50.00%	0.00%	100.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	2	1	0	0	0	0	3
PEAK HR FACTOR :			0.500	0.250					0.375
			0.375						

1285-03

Prepared by National Data & Surveying Services

Commerce Ln & Pilot Travel Center North Dwy

Peak Hour Turning Movement Count

ID: 21-100017-002
City: Orland

Day: Thursday
Date: 09/02/2021

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Commerce Ln — SOUTHBOUND

	U-turn	Left	Through	Right	Total
AM	0	77	56	0	151
NOON	0	0	0	0	0
PM	0	104	98	0	186
Peds	0	0	0	0	

Pilot Travel Center North Dwy — EASTBOUND

	AM	NOON	PM	Peds
Total (departing)	0	0	0	
U-turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

Pilot Travel Center North Dwy — WESTBOUND

	PM	NOON	AM	Peds
Right	38	0	16	0
Through	0	0	0	0
Left	2	0	0	0
U-turn	0	0	0	0
Total (arriving)	100	0	56	

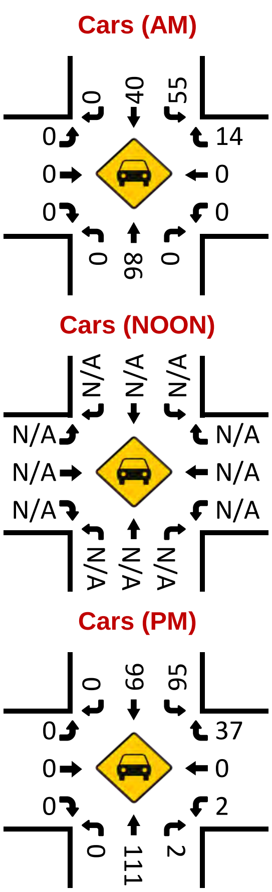
Commerce Ln — NORTHBOUND

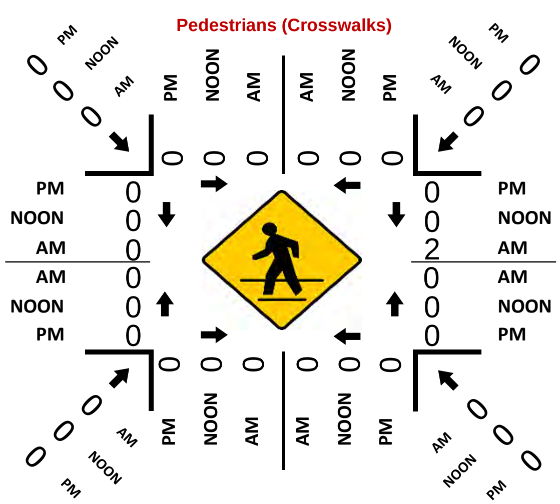
	Total	U-turn	Left	Through	Right
Peds		0	0	0	0
PM	106	0	0	148	2
NOON	0	0	0	0	0
AM	77	0	0	135	0

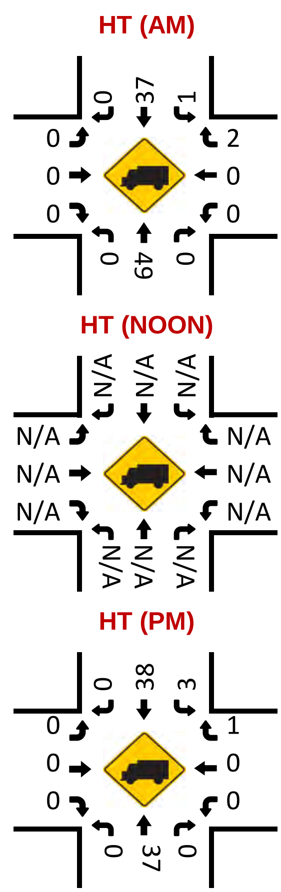
CONTROL

No Control

	AM	NOON	PM
TEV	284	0	392
PHF	0.91		0.97







National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center North Dwy
City: Orland
Control: No Control

Project ID: 21-100017-002
Date: 9/2/2021

Total

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center North Dwy				Pilot Travel Center North Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	31	1	0	8	19	0	0	0	0	0	0	0	0	5	0	64
7:15 AM	0	28	0	0	12	15	0	0	0	0	0	0	0	0	4	0	59
7:30 AM	0	34	0	0	19	20	0	0	0	0	0	0	0	0	5	0	78
7:45 AM	0	39	0	0	10	27	0	0	0	0	0	0	0	0	2	0	78
8:00 AM	0	36	0	0	12	15	0	0	0	0	0	0	0	0	4	0	67
8:15 AM	0	26	0	0	15	15	0	0	0	0	0	0	0	0	5	0	61
8:30 AM	0	25	0	0	6	16	0	0	0	0	0	0	0	0	10	0	57
8:45 AM	0	26	0	0	15	23	0	0	0	0	0	0	0	0	8	0	72
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	245	1	0	97	150	0	0	0	0	0	0	0	0	43	0	536
APPROACH %'s :	0.00%	99.59%	0.41%	0.00%	39.27%	60.73%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	135	0	0	56	77	0	0	0	0	0	0	0	0	16	0	284
PEAK HR FACTOR :	0.000	0.865	0.000	0.000	0.737	0.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.000	0.910
	0.865				0.853								0.800				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	46	0	0	20	27	0	0	0	0	0	0	0	0	14	0	107
4:15 PM	0	34	1	0	20	27	0	0	0	0	0	0	0	0	9	0	91
4:30 PM	0	38	0	0	18	21	0	0	0	0	0	0	0	0	6	0	83
4:45 PM	0	37	0	0	22	29	0	0	0	0	0	0	0	0	11	0	99
5:00 PM	0	31	1	0	26	26	0	0	0	0	0	0	1	0	8	0	93
5:15 PM	0	40	1	0	25	23	0	0	0	0	0	0	1	0	9	0	99
5:30 PM	0	40	0	0	25	26	0	0	0	0	0	0	0	0	10	0	101
5:45 PM	0	35	2	0	28	18	0	0	0	0	0	0	0	0	8	0	91
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	301	5	0	184	197	0	0	0	0	0	0	2	0	75	0	764
APPROACH %'s :	0.00%	98.37%	1.63%	0.00%	48.29%	51.71%	0.00%	0.00%					2.60%	0.00%	97.40%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	148	2	0	98	104	0	0	0	0	0	0	2	0	38	0	392
PEAK HR FACTOR :	0.000	0.925	0.500	0.000	0.942	0.897	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.864	0.000	0.970
	0.915				0.971								0.909				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center North Dwy
City: Orland
Control: No Control

Project ID: 21-100017-002
Date: 9/2/2021

Cars

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center North Dwy				Pilot Travel Center North Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	15	1	0	8	7	0	0	0	0	0	0	0	0	5	0	36
7:15 AM	0	16	0	0	12	2	0	0	0	0	0	0	0	0	4	0	34
7:30 AM	0	17	0	0	18	8	0	0	0	0	0	0	0	0	5	0	48
7:45 AM	0	32	0	0	10	17	0	0	0	0	0	0	0	0	2	0	61
8:00 AM	0	19	0	0	12	10	0	0	0	0	0	0	0	0	2	0	43
8:15 AM	0	18	0	0	15	5	0	0	0	0	0	0	0	0	5	0	43
8:30 AM	0	15	0	0	6	12	0	0	0	0	0	0	0	0	10	0	43
8:45 AM	0	20	0	0	15	9	0	0	0	0	0	0	0	0	8	0	52
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	152	1	0	96	70	0	0	0	0	0	0	0	0	41	0	360
APPROACH %'s :	0.00%	99.35%	0.65%	0.00%	57.83%	42.17%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	86	0	0	55	40	0	0	0	0	0	0	0	0	14	0	195
PEAK HR FACTOR :	0.00	0.672	0.000	0.000	0.764	0.588	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.700	0.000	0.799
	0.672				0.880								0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	32	0	0	18	15	0	0	0	0	0	0	0	0	11	0	76
4:15 PM	0	22	1	0	20	20	0	0	0	0	0	0	0	0	9	0	72
4:30 PM	0	32	0	0	18	14	0	0	0	0	0	0	0	0	6	0	70
4:45 PM	0	25	0	0	21	18	0	0	0	0	0	0	0	0	11	0	75
5:00 PM	0	20	1	0	24	16	0	0	0	0	0	0	1	0	8	0	70
5:15 PM	0	32	1	0	25	15	0	0	0	0	0	0	1	0	8	0	82
5:30 PM	0	34	0	0	25	17	0	0	0	0	0	0	0	0	10	0	86
5:45 PM	0	27	2	0	28	13	0	0	0	0	0	0	0	0	8	0	78
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	224	5	0	179	128	0	0	0	0	0	0	2	0	71	0	609
APPROACH %'s :	0.00%	97.82%	2.18%	0.00%	58.31%	41.69%	0.00%	0.00%					2.74%	0.00%	97.26%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	111	2	0	95	66	0	0	0	0	0	0	2	0	37	0	313
PEAK HR FACTOR :	0.00	0.816	0.500	0.000	0.950	0.917	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.841	0.000	0.910
	0.831				0.958								0.886				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center North Dwy
City: Orland
Control: No Control

Project ID: 21-100017-002
Date: 9/2/2021

Bikes

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center North Dwy				Pilot Travel Center North Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250																

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center North Dwy
City: Orland
Control: No Control

Project ID: 21-100017-002
Date: 9/2/2021

HT

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center North Dwy				Pilot Travel Center North Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	16	0	0	0	12	0	0	0	0	0	0	0	0	0	0	28
7:15 AM	0	12	0	0	0	13	0	0	0	0	0	0	0	0	0	0	25
7:30 AM	0	17	0	0	1	12	0	0	0	0	0	0	0	0	0	0	30
7:45 AM	0	7	0	0	0	10	0	0	0	0	0	0	0	0	0	0	17
8:00 AM	0	17	0	0	0	5	0	0	0	0	0	0	0	0	2	0	24
8:15 AM	0	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	18
8:30 AM	0	10	0	0	0	4	0	0	0	0	0	0	0	0	0	0	14
8:45 AM	0	6	0	0	0	14	0	0	0	0	0	0	0	0	0	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	93	0	0	1	80	0	0	0	0	0	0	0	0	2	0	176
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	1.23%	98.77%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	49	0	0	1	37	0	0	0	0	0	0	0	0	2	0	89
PEAK HR FACTOR :	0.000	0.721	0.000	0.000	0.250	0.771	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.742
	0.721				0.731								0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	14	0	0	2	12	0	0	0	0	0	0	0	0	3	0	31
4:15 PM	0	12	0	0	0	7	0	0	0	0	0	0	0	0	0	0	19
4:30 PM	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0	0	13
4:45 PM	0	12	0	0	1	11	0	0	0	0	0	0	0	0	0	0	24
5:00 PM	0	11	0	0	2	10	0	0	0	0	0	0	0	0	0	0	23
5:15 PM	0	8	0	0	0	8	0	0	0	0	0	0	0	0	1	0	17
5:30 PM	0	6	0	0	0	9	0	0	0	0	0	0	0	0	0	0	15
5:45 PM	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	77	0	0	5	69	0	0	0	0	0	0	0	0	4	0	155
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	6.76%	93.24%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	37	0	0	3	38	0	0	0	0	0	0	0	0	1	0	79
PEAK HR FACTOR :	0.00	0.771	0.000	0.000	0.375	0.864	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.823
	0.771				0.854								0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center North Dwy
City: Orland

Project ID: 21-100017-002
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	Commerce Ln		Commerce Ln		Pilot Travel Center North Dwy		Pilot Travel Center North Dwy		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	2	0	0	2
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	2	0	0	2
PEAK HR FACTOR :						0.250			0.250
					0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	1	1	0	0	0	0	2
APPROACH %'s :			50.00%	50.00%					
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

1285-03

Prepared by National Data & Surveying Services

Commerce Ln & Pilot Travel Center Middle Dwy

Peak Hour Turning Movement Count

ID: 21-100017-003
City: Orland

Day: Thursday
Date: 09/02/2021

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Commerce Ln — SOUTHBOUND

AM	0	63	17	1	133
NOON	0	0	0	0	0
PM	0	74	30	0	156
	0	0	0	0	

Pilot Travel Center Middle Dwy — EASTBOUND

	AM	NOON	PM	
	0	0	0	
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0

Pilot Travel Center Middle Dwy — WESTBOUND

	PM	NOON	AM
0	86	0	55
0	0	0	0
0	2	0	4
0	0	0	0
	37	0	23

CONTROL

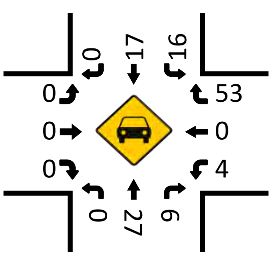
No Control

	AM	NOON	PM
TEV	223	0	269
PHF	0.82		0.86

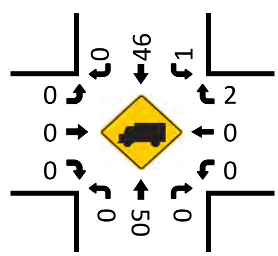
Commerce Ln — NORTHBOUND

		0	0	0	0
PM	76	0	0	70	7
NOON	0	0	0	0	0
AM	67	0	0	77	6

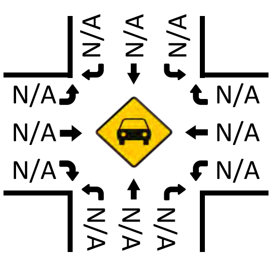
Cars (AM)



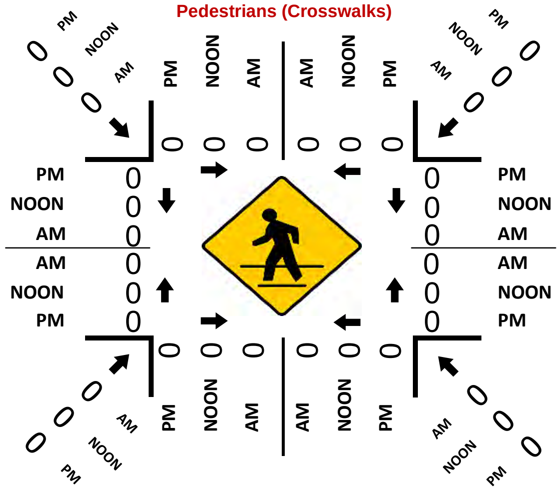
HT (AM)



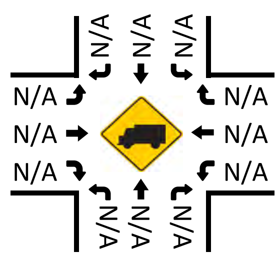
Cars (NOON)



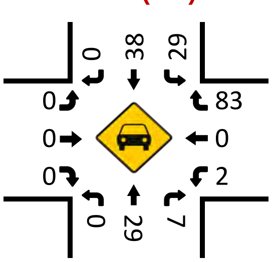
Pedestrians (Crosswalks)



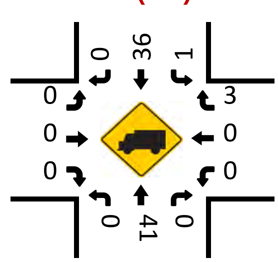
HT (NOON)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center Middle Dwy
City: Orland
Control: No Control

Project ID: 21-100017-003
Date: 9/2/2021

Total

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center Middle Dwy				Pilot Travel Center Middle Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	22	2	0	5	14	0	0	0	0	0	0	1	0	11	0	55
7:15 AM	0	14	1	0	1	14	0	0	0	0	0	0	0	0	13	0	43
7:30 AM	0	22	1	0	5	15	0	0	0	0	0	0	1	0	13	0	57
7:45 AM	0	19	2	0	6	20	0	1	0	0	0	0	2	0	18	0	68
8:00 AM	0	28	0	0	4	11	0	0	0	0	0	0	0	0	8	0	51
8:15 AM	0	12	1	0	2	13	0	0	0	0	0	0	0	0	14	0	42
8:30 AM	0	19	0	0	7	9	0	0	0	0	0	0	0	0	6	0	41
8:45 AM	0	13	0	0	3	20	0	0	0	0	0	0	0	0	14	0	50
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	149	7	0	33	116	0	1	0	0	0	0	4	0	97	0	407
APPROACH %'s :	0.00%	95.51%	4.49%	0.00%	22.00%	77.33%	0.00%	0.67%					3.96%	0.00%	96.04%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	77	6	0	17	63	0	1	0	0	0	0	4	0	55	0	223
PEAK HR FACTOR :	0.000	0.875	0.750	0.000	0.708	0.788	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.764	0.000	0.820
	0.865				0.750								0.738				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	25	3	0	9	18	0	0	0	0	0	0	1	0	22	0	78
4:15 PM	0	14	2	0	10	17	0	0	0	0	0	0	0	0	21	0	64
4:30 PM	0	13	0	0	5	16	0	0	0	0	0	0	0	0	25	0	59
4:45 PM	0	18	2	0	6	23	0	0	0	0	0	0	1	0	18	0	68
5:00 PM	0	20	2	0	6	21	0	0	0	0	0	0	0	0	12	0	61
5:15 PM	0	15	1	0	6	18	0	0	0	0	0	0	1	0	26	0	67
5:30 PM	0	18	2	0	5	21	0	0	0	0	0	0	0	0	22	0	68
5:45 PM	0	16	2	0	7	11	0	0	0	0	0	0	2	0	22	0	60
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	139	14	0	54	145	0	0	0	0	0	0	5	0	168	0	525
APPROACH %'s :	0.00%	90.85%	9.15%	0.00%	27.14%	72.86%	0.00%	0.00%					2.89%	0.00%	97.11%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	70	7	0	30	74	0	0	0	0	0	0	2	0	86	0	269
PEAK HR FACTOR :	0.000	0.700	0.583	0.000	0.750	0.804	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.860	0.000	0.862
	0.688				0.897								0.880				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center Middle Dwy
City: Orland
Control: No Control

Project ID: 21-100017-003
Date: 9/2/2021

Cars

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center Middle Dwy				Pilot Travel Center Middle Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	2	0	5	2	0	0	0	0	0	0	1	0	10	0	26
7:15 AM	0	3	1	0	1	1	0	0	0	0	0	0	0	0	13	0	19
7:30 AM	0	4	1	0	5	3	0	0	0	0	0	0	1	0	13	0	27
7:45 AM	0	14	2	0	5	11	0	1	0	0	0	0	2	0	17	0	52
8:00 AM	0	11	0	0	4	6	0	0	0	0	0	0	0	0	8	0	29
8:15 AM	0	4	1	0	2	3	0	0	0	0	0	0	0	0	14	0	24
8:30 AM	0	9	0	0	7	5	0	0	0	0	0	0	0	0	6	0	27
8:45 AM	0	7	0	0	3	6	0	0	0	0	0	0	0	0	14	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	58	7	0	32	37	0	1	0	0	0	0	4	0	95	0	234
APPROACH %'s :	0.00%	89.23%	10.77%	0.00%	45.71%	52.86%	0.00%	1.43%					4.04%	0.00%	95.96%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	27	6	0	16	17	0	1	0	0	0	0	4	0	53	0	124
PEAK HR FACTOR :	0.00	0.482	0.750	0.000	0.800	0.386	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.779	0.000	0.596
	0.516				0.500								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	12	3	0	8	7	0	0	0	0	0	0	1	0	21	0	52
4:15 PM	0	2	2	0	10	10	0	0	0	0	0	0	0	0	20	0	44
4:30 PM	0	8	0	0	5	9	0	0	0	0	0	0	0	0	25	0	47
4:45 PM	0	7	2	0	6	12	0	0	0	0	0	0	1	0	17	0	45
5:00 PM	0	9	2	0	6	11	0	0	0	0	0	0	0	0	12	0	40
5:15 PM	0	8	1	0	6	10	0	0	0	0	0	0	1	0	25	0	51
5:30 PM	0	12	2	0	5	12	0	0	0	0	0	0	0	0	22	0	53
5:45 PM	0	8	2	0	7	6	0	0	0	0	0	0	2	0	21	0	46
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	66	14	0	53	77	0	0	0	0	0	0	5	0	163	0	378
APPROACH %'s :	0.00%	82.50%	17.50%	0.00%	40.77%	59.23%	0.00%	0.00%					2.98%	0.00%	97.02%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	29	7	0	29	38	0	0	0	0	0	0	2	0	83	0	188
PEAK HR FACTOR :	0.00	0.604	0.583	0.000	0.725	0.792	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.830	0.000	0.904
	0.600				0.838								0.850				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center Middle Dwy
City: Orland
Control: No Control

Project ID: 21-100017-003
Date: 9/2/2021

Bikes

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center Middle Dwy				Pilot Travel Center Middle Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center Middle Dwy
City: Orland
Control: No Control

Project ID: 21-100017-003
Date: 9/2/2021

HT

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center Middle Dwy				Pilot Travel Center Middle Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	16	0	0	0	12	0	0	0	0	0	0	0	0	1	0	29
7:15 AM	0	11	0	0	0	13	0	0	0	0	0	0	0	0	0	0	24
7:30 AM	0	18	0	0	0	12	0	0	0	0	0	0	0	0	0	0	30
7:45 AM	0	5	0	0	1	9	0	0	0	0	0	0	0	0	1	0	16
8:00 AM	0	17	0	0	0	5	0	0	0	0	0	0	0	0	0	0	22
8:15 AM	0	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	18
8:30 AM	0	10	0	0	0	4	0	0	0	0	0	0	0	0	0	0	14
8:45 AM	0	6	0	0	0	14	0	0	0	0	0	0	0	0	0	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	91	0	0	1	79	0	0	0	0	0	0	0	0	2	0	173
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	1.25%	98.75%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	50	0	0	1	46	0	0	0	0	0	0	0	0	2	0	99
PEAK HR FACTOR :	0.000	0.694	0.000	0.000	0.250	0.885	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.825
	0.694				0.904								0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	13	0	0	1	11	0	0	0	0	0	0	0	0	1	0	26
4:15 PM	0	12	0	0	0	7	0	0	0	0	0	0	0	0	1	0	20
4:30 PM	0	5	0	0	0	7	0	0	0	0	0	0	0	0	0	0	12
4:45 PM	0	11	0	0	0	11	0	0	0	0	0	0	0	0	1	0	23
5:00 PM	0	11	0	0	0	10	0	0	0	0	0	0	0	0	0	0	21
5:15 PM	0	7	0	0	0	8	0	0	0	0	0	0	0	0	1	0	16
5:30 PM	0	6	0	0	0	9	0	0	0	0	0	0	0	0	0	0	15
5:45 PM	0	8	0	0	0	5	0	0	0	0	0	0	0	0	1	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	73	0	0	1	68	0	0	0	0	0	0	0	0	5	0	147
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	1.45%	98.55%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	41	0	0	1	36	0	0	0	0	0	0	0	0	3	0	81
PEAK HR FACTOR :	0.00	0.788	0.000	0.000	0.250	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.779
	0.788				0.771								0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center Middle Dwy
City: Orland
Project ID: 21-100017-003
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	Commerce Ln		Commerce Ln		Pilot Travel Center Middle Dwy		Pilot Travel Center Middle Dwy		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:00 AM - 08:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

1285-03

Prepared by National Data & Surveying Services

Commerce Ln & Pilot Travel Center South Dwy

Peak Hour Turning Movement Count

ID: 21-100017-004
City: Orland

Day: Thursday
Date: 09/02/2021

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Commerce Ln — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	0	55	12	0	83
NOON	0	0	0	0	0
PM	0	67	18	0	78
Bikes	0	0	0	0	

Pilot Travel Center South Dwy — WESTBOUND

	Bikes	PM	NOON	AM
Right	0	34	0	48
Through	0	0	0	0
Left	0	2	0	3
U-Turn	0	0	0	0
Departing		18	0	12

Pilot Travel Center South Dwy — EASTBOUND

	AM	NOON	PM	Bikes
Departing	0	0	0	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

Commerce Ln — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
Bikes		0	0	0	0
PM	69	0	0	44	0
NOON	0	0	0	0	0
AM	58	0	0	35	0

CONTROL

No Control

	AM	NOON	PM
TEV	153	0	165
PHF	0.87		0.94

Cars / HT

	SB U	SB Thru	SB Left	WB Right	WB Thru	WB Left	EB U	EB Left	EB Thru	EB Right	NB U	NB Left/Thru	NB Right
Cars (AM)	0	17	4	4	0	2		0	0	0	0	29	0
Cars (NOON)	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
Cars (PM)	0	45	2	2	0	0		0	0	0	0	41	0
HT (AM)	0	38	8	44	0	1		0	0	0	0	6	0
HT (NOON)	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
HT (PM)	0	22	16	32	0	2		0	0	0	0	3	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (each direction)	0	0	0
South (each direction)	0	0	0
East (each direction)	0	0	0
West (each direction)	0	0	0
Diagonals (all corners)	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center South Dwy
City: Orland
Control: No Control

Project ID: 21-100017-004
Date: 9/2/2021

Total

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center South Dwy				Pilot Travel Center South Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	0	0	4	11	0	0	0	0	0	0	2	0	15	0	40
7:15 AM	0	7	0	0	3	11	0	0	0	0	0	0	0	0	9	0	30
7:30 AM	0	6	0	0	0	16	0	0	0	0	0	0	1	0	16	0	39
7:45 AM	0	14	0	0	5	17	0	0	0	0	0	0	0	0	8	0	44
8:00 AM	0	10	0	0	1	10	0	0	0	0	0	0	0	0	17	0	38
8:15 AM	0	4	0	0	2	11	0	0	0	0	0	0	0	0	9	0	26
8:30 AM	0	10	0	0	2	7	0	0	0	0	0	0	0	0	9	0	28
8:45 AM	0	9	0	0	4	15	0	0	0	0	0	0	0	0	4	0	32
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	68	0	0	21	98	0	0	0	0	0	0	3	0	87	0	277
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	17.65%	82.35%	0.00%	0.00%					3.33%	0.00%	96.67%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	35	0	0	12	55	0	0	0	0	0	0	3	0	48	0	153
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.600	0.809	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.750	0.000	0.869
	0.625				0.761								0.750				

	Commerce Ln				Commerce Ln				Pilot Travel Center South Dwy				Pilot Travel Center South Dwy				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	18	0	0	1	17	0	0	0	0	0	0	0	0	10	0	46
4:15 PM	0	5	0	0	3	15	0	0	0	0	0	0	0	0	11	0	34
4:30 PM	0	8	0	0	3	13	0	0	0	0	0	0	1	0	5	0	30
4:45 PM	0	10	0	0	3	20	0	0	0	0	0	0	0	0	10	0	43
5:00 PM	0	12	0	0	4	18	0	0	0	0	0	0	0	0	10	0	44
5:15 PM	0	9	0	0	2	16	0	0	0	0	0	0	2	0	8	0	37
5:30 PM	0	13	0	0	9	13	0	0	0	0	0	0	0	0	6	0	41
5:45 PM	0	10	0	0	1	11	0	0	0	0	0	0	0	0	8	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	85	0	0	26	123	0	0	0	0	0	0	3	0	68	0	305
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	17.45%	82.55%	0.00%	0.00%					4.23%	0.00%	95.77%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	44	0	0	18	67	0	0	0	0	0	0	2	0	34	0	165
PEAK HR FACTOR :	0.000	0.846	0.000	0.000	0.500	0.838	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.850	0.000	0.938
	0.846				0.924								0.900				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center South Dwy
City: Orland
Control: No Control

Project ID: 21-100017-004
Date: 9/2/2021

Cars

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center South Dwy				Pilot Travel Center South Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	7	0	0	1	2	0	0	0	0	0	0	2	0	1	0	13
7:15 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9
7:45 AM	0	13	0	0	3	10	0	0	0	0	0	0	0	0	3	0	29
8:00 AM	0	10	0	0	1	5	0	0	0	0	0	0	0	0	1	0	17
8:15 AM	0	4	0	0	0	3	0	0	0	0	0	0	0	0	1	0	8
8:30 AM	0	9	0	0	0	5	0	0	0	0	0	0	0	0	0	0	14
8:45 AM	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	59	0	0	5	36	0	0	0	0	0	0	2	0	6	0	108
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	12.20%	87.80%	0.00%	0.00%					25.00%	0.00%	75.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	29	0	0	4	17	0	0	0	0	0	0	2	0	4	0	56
PEAK HR FACTOR :	0.00	0.558	0.000	0.000	0.333	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.333	0.000	0.483
	0.558				0.404								0.500				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	15	0	0	0	8	0	0	0	0	0	0	0	0	0	0	23
4:15 PM	0	4	0	0	0	10	0	0	0	0	0	0	0	0	0	0	14
4:30 PM	0	8	0	0	0	9	0	0	0	0	0	0	0	0	0	0	17
4:45 PM	0	9	0	0	0	13	0	0	0	0	0	0	0	0	0	0	22
5:00 PM	0	11	0	0	1	10	0	0	0	0	0	0	0	0	0	0	22
5:15 PM	0	8	0	0	0	11	0	0	0	0	0	0	0	0	1	0	20
5:30 PM	0	13	0	0	1	11	0	0	0	0	0	0	0	0	1	0	26
5:45 PM	0	10	0	0	0	8	0	0	0	0	0	0	0	0	0	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	78	0	0	2	80	0	0	0	0	0	0	0	0	2	0	162
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	2.44%	97.56%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	41	0	0	2	45	0	0	0	0	0	0	0	0	2	0	90
PEAK HR FACTOR :	0.00	0.788	0.000	0.000	0.500	0.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.865
	0.788				0.904								0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center South Dwy
City: Orland
Control: No Control

Project ID: 21-100017-004
Date: 9/2/2021

Bikes

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center South Dwy				Pilot Travel Center South Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
		0.250															

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center South Dwy
City: Orland
Control: No Control

Project ID: 21-100017-004
Date: 9/2/2021

HT

NS/EW Streets:	Commerce Ln				Commerce Ln				Pilot Travel Center South Dwy				Pilot Travel Center South Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	3	9	0	0	0	0	0	0	0	0	14	0	27
7:15 AM	0	3	0	0	3	10	0	0	0	0	0	0	0	0	9	0	25
7:30 AM	0	1	0	0	0	12	0	0	0	0	0	0	1	0	16	0	30
7:45 AM	0	1	0	0	2	7	0	0	0	0	0	0	0	0	5	0	15
8:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	16	0	21
8:15 AM	0	0	0	0	2	8	0	0	0	0	0	0	0	0	8	0	18
8:30 AM	0	1	0	0	2	2	0	0	0	0	0	0	0	0	9	0	14
8:45 AM	0	2	0	0	4	9	0	0	0	0	0	0	0	0	4	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	0	0	16	62	0	0	0	0	0	0	1	0	81	0	169
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	20.51%	79.49%	0.00%	0.00%					1.22%	0.00%	98.78%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	6	0	0	8	38	0	0	0	0	0	0	1	0	44	0	97
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.667	0.792	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.688	0.000	0.808
	0.500				0.885								0.662				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	1	9	0	0	0	0	0	0	0	0	10	0	23
4:15 PM	0	1	0	0	3	5	0	0	0	0	0	0	0	0	11	0	20
4:30 PM	0	0	0	0	3	4	0	0	0	0	0	0	1	0	5	0	13
4:45 PM	0	1	0	0	3	7	0	0	0	0	0	0	0	0	10	0	21
5:00 PM	0	1	0	0	3	8	0	0	0	0	0	0	0	0	10	0	22
5:15 PM	0	1	0	0	2	5	0	0	0	0	0	0	2	0	7	0	17
5:30 PM	0	0	0	0	8	2	0	0	0	0	0	0	0	0	5	0	15
5:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	8	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	7	0	0	24	43	0	0	0	0	0	0	3	0	66	0	143
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	35.82%	64.18%	0.00%	0.00%					4.35%	0.00%	95.65%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	3	0	0	16	22	0	0	0	0	0	0	2	0	32	0	75
PEAK HR FACTOR :	0.00	0.750	0.000	0.000	0.500	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.800	0.000	0.852
	0.750				0.864								0.850				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Pilot Travel Center South Dwy
City: Orland

Project ID: 21-100017-004
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	Commerce Ln		Commerce Ln		Pilot Travel Center South Dwy		Pilot Travel Center South Dwy		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	2	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	2	0	0	2
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	07:00 AM - 08:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%							
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Commerce Ln & Co Rd 13

Peak Hour Turning Movement Count

ID: 21-100017-005
City: Orland

Day: Thursday
Date: 09/02/2021

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Commerce Ln — SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	2	16	40	0	36
NOON	0	0	0	0	0
PM	1	42	26	0	43
	0	0	0	0	

Co Rd 13 — WESTBOUND

		PM	NOON	AM
Right	0	4	0	6
Thru	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Exit		26	0	40

Co Rd 13 — EASTBOUND

	AM	NOON	PM	
Exit	2	0	1	
U-Turn	0	0	0	0
Left	2	0	1	0
Thru	0	0	0	0
Right	0	0	0	0

Commerce Ln — NORTHBOUND

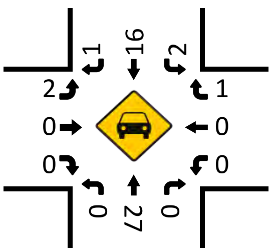
	Exit	U-Turn	Left	Thru	Right
		0	0	0	0
PM	42	0	0	38	0
NOON	0	0	0	0	0
AM	16	0	0	28	0

CONTROL

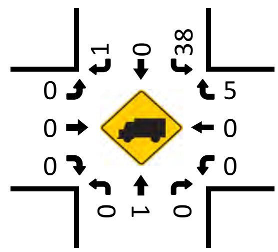
4-Way Stop

	AM	NOON	PM
TEV	94	0	112
PHF	0.73		0.93

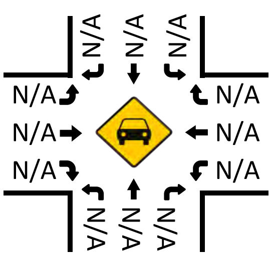
Cars (AM)



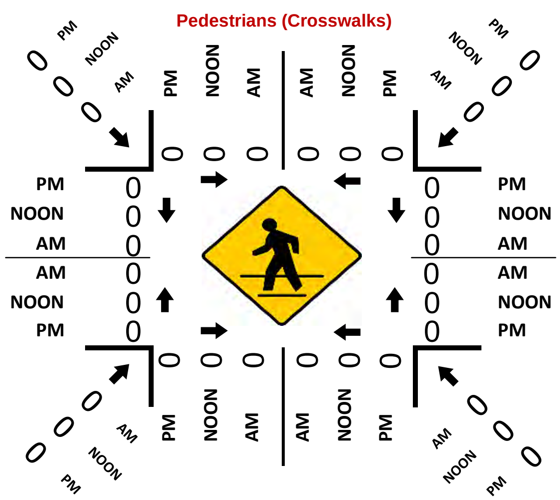
HT (AM)



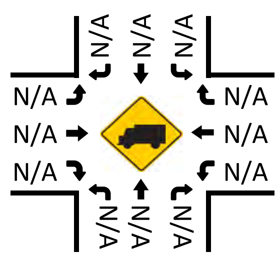
Cars (NOON)



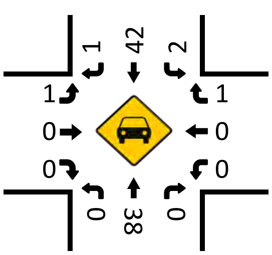
Pedestrians (Crosswalks)



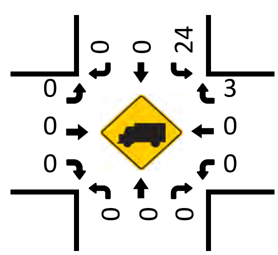
HT (NOON)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Co Rd 13
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-005
Date: 9/2/2021

Total

NS/EW Streets:	Commerce Ln				Commerce Ln				Co Rd 13				Co Rd 13				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	7	0	0	11	2	0	0	0	0	0	0	0	0	2	0	22
7:15 AM	0	6	0	0	9	0	1	0	0	0	0	0	0	0	1	0	17
7:30 AM	0	4	0	0	13	5	0	0	0	0	0	0	0	0	1	0	23
7:45 AM	0	11	0	0	7	9	1	0	2	0	0	0	0	0	2	0	32
8:00 AM	0	9	0	0	6	4	0	0	0	0	0	0	0	0	0	0	19
8:15 AM	0	3	0	0	9	2	0	0	1	0	0	0	0	0	0	0	15
8:30 AM	0	8	0	0	3	4	0	0	0	0	0	0	0	0	2	0	17
8:45 AM	0	6	0	0	9	6	0	0	0	0	0	0	0	0	3	0	24

	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	54	0	0	67	32	2	0	3	0	0	0	0	0	11	0	169
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	66.34%	31.68%	1.98%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	28	0	0	40	16	2	0	2	0	0	0	0	0	6	0	94
PEAK HR FACTOR :	0.000	0.636	0.000	0.000	0.769	0.444	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.734
	0.636				0.806				0.250				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	12	0	0	11	6	0	0	0	0	0	0	0	0	5	0	34
4:15 PM	0	4	2	0	5	9	1	0	0	0	0	0	1	0	1	0	23
4:30 PM	0	8	0	0	7	7	0	0	1	0	0	0	0	0	0	0	23
4:45 PM	0	8	0	0	8	11	1	0	0	0	0	0	0	0	1	0	29
5:00 PM	0	9	0	0	8	10	0	0	1	0	0	0	0	0	2	0	30
5:15 PM	0	8	0	0	7	11	0	0	0	0	0	0	0	0	1	0	27
5:30 PM	0	13	0	0	3	10	0	0	0	0	0	0	0	0	0	0	26
5:45 PM	0	11	0	0	4	7	0	0	0	0	0	0	0	0	0	0	22

	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	73	2	0	53	71	2	0	2	0	0	0	1	0	10	0	214
APPROACH %'s :	0.00%	97.33%	2.67%	0.00%	42.06%	56.35%	1.59%	0.00%	100.00%	0.00%	0.00%	0.00%	9.09%	0.00%	90.91%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	38	0	0	26	42	1	0	1	0	0	0	0	0	4	0	112
PEAK HR FACTOR :	0.000	0.731	0.000	0.000	0.813	0.955	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.933
	0.731				0.863				0.250				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Co Rd 13
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-005
Date: 9/2/2021

Cars

NS/EW Streets:	Commerce Ln				Commerce Ln				Co Rd 13				Co Rd 13				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	7	0	0	2	2	0	0	0	0	0	0	0	0	0	0	11
7:15 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:45 AM	0	11	0	0	0	9	1	0	2	0	0	0	0	0	1	0	24
8:00 AM	0	9	0	0	1	4	0	0	0	0	0	0	0	0	0	0	14
8:15 AM	0	3	0	0	1	2	0	0	1	0	0	0	0	0	0	0	7
8:30 AM	0	8	0	0	1	4	0	0	0	0	0	0	0	0	1	0	14
8:45 AM	0	6	0	0	1	5	0	0	0	0	0	0	0	0	1	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	53	0	0	6	31	1	0	3	0	0	0	0	0	3	0	97
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	15.79%	81.58%	2.63%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	27	0	0	2	16	1	0	2	0	0	0	0	0	1	0	49
PEAK HR FACTOR :	0.00	0.614	0.000	0.000	0.250	0.444	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.510
	0.614				0.475				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	12	0	0	2	6	0	0	0	0	0	0	0	0	3	0	23
4:15 PM	0	4	1	0	0	9	1	0	0	0	0	0	1	0	0	0	16
4:30 PM	0	8	0	0	2	7	0	0	1	0	0	0	0	0	0	0	18
4:45 PM	0	8	0	0	1	11	1	0	0	0	0	0	0	0	0	0	21
5:00 PM	0	9	0	0	0	10	0	0	1	0	0	0	0	0	1	0	21
5:15 PM	0	8	0	0	0	11	0	0	0	0	0	0	0	0	0	0	19
5:30 PM	0	13	0	0	1	10	0	0	0	0	0	0	0	0	0	0	24
5:45 PM	0	11	0	0	1	7	0	0	0	0	0	0	0	0	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	73	1	0	7	71	2	0	2	0	0	0	1	0	4	0	161
APPROACH %'s :	0.00%	98.65%	1.35%	0.00%	8.75%	88.75%	2.50%	0.00%	100.00%	0.00%	0.00%	0.00%	20.00%	0.00%	80.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	38	0	0	2	42	1	0	1	0	0	0	0	0	1	0	85
PEAK HR FACTOR :	0.00	0.731	0.000	0.000	0.500	0.955	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.885
	0.731				0.865				0.250				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Co Rd 13
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-005
Date: 9/2/2021

Bikes

NS/EW Streets:	Commerce Ln				Commerce Ln				Co Rd 13				Co Rd 13				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250																

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Co Rd 13
City: Orland
Control: 4-Way Stop

Project ID: 21-100017-005
Date: 9/2/2021

HT

NS/EW Streets:	Commerce Ln				Commerce Ln				Co Rd 13				Co Rd 13				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	9	0	0	0	0	0	0	0	0	0	2	0	11
7:15 AM	0	1	0	0	9	0	1	0	0	0	0	0	0	0	1	0	12
7:30 AM	0	0	0	0	13	0	0	0	0	0	0	0	0	0	1	0	14
7:45 AM	0	0	0	0	7	0	0	0	0	0	0	0	0	0	1	0	8
8:00 AM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
8:15 AM	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
8:45 AM	0	0	0	0	8	1	0	0	0	0	0	0	0	0	2	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	61	1	1	0	0	0	0	0	0	0	8	0	72
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	96.83%	1.59%	1.59%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	1	0	0	38	0	1	0	0	0	0	0	0	0	5	0	45
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.731	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.804
	0.250				0.750								0.625				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	9	0	0	0	0	0	0	0	0	0	2	0	11
4:15 PM	0	0	1	0	5	0	0	0	0	0	0	0	0	0	1	0	7
4:30 PM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	7	0	0	0	0	0	0	0	0	0	1	0	8
5:00 PM	0	0	0	0	8	0	0	0	0	0	0	0	0	0	1	0	9
5:15 PM	0	0	0	0	7	0	0	0	0	0	0	0	0	0	1	0	8
5:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	46	0	0	0	0	0	0	0	0	0	6	0	53
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	24	0	0	0	0	0	0	0	0	0	3	0	27
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.750
					0.750								0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Commerce Ln & Co Rd 13
City: Orland

Project ID: 21-100017-005
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	Commerce Ln		Commerce Ln		Co Rd 13		Co Rd 13		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:00 AM - 08:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

1285-03

Prepared by National Data & Surveying Services

I-5 SB Ramps & Newville Rd

Peak Hour Turning Movement Count

ID: 21-100017-006
City: Orland

Day: Thursday
Date: 09/02/2021

PEAK HOURS	COUNT PERIODS
AM: 07:15 AM - 08:15 AM	AM: 07:00 AM - 09:00 AM
NOON: NONE	NOON: NONE
PM: 04:45 PM - 05:45 PM	PM: 04:00 PM - 06:00 PM

I-5 SB Ramps — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	61	0	87	0	87
NOON	0	0	0	0	0
PM	105	0	106	0	65
(red)	0	0	0	0	

Newville Rd — EASTBOUND

	AM	NOON	PM	(red)
Departing	263	0	496	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	350	0	301	0
Right	126	0	105	0

Newville Rd — WESTBOUND

	(red)	PM	NOON	AM
Left	0	65	0	87
Through	0	391	0	202
Right	0	0	0	0
U-Turn	0	0	0	0
Departing		407	0	437

I-5 SB Ramps — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
(red)		0	0	0	0
PM	105	0	0	0	0
NOON	0	0	0	0	0
AM	126	0	0	0	0

CONTROL

3-Way Stop (SB/EB/WB)

	AM	NOON	PM
TEV	913	0	1073
PHF	0.88		0.96

Cars (AM)

Approach	Left	Through	Right
SB	79	0	43
EB	0	315	89
WB	0	176	82
NB	0	0	0

EB U-turn: 0; WB U-turn: 0

HT (AM)

Approach	Left	Through	Right
SB	8	0	18
EB	0	35	37
WB	0	26	5
NB	0	0	0

Cars (NOON)

All movements: N/A

HT (NOON)

All movements: N/A

Cars (PM)

Approach	Left	Through	Right
SB	101	0	84
EB	0	278	86
WB	0	364	62
NB	0	0	0

HT (PM)

Approach	Left	Through	Right
SB	5	0	21
EB	0	23	19
WB	0	27	3
NB	0	0	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0	0	0
South	0	0	0
East	0	0	0
West	0	0	0
Diagonals	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (SB/EB/WB)

Project ID: 21-100017-006
Date: 9/2/2021

Total

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	17	0	14	0	0	39	30	0	0	30	35	0	165
7:15 AM	0	0	0	0	11	0	14	0	0	73	28	0	0	49	16	0	191
7:30 AM	0	0	0	0	22	0	19	0	0	77	33	0	0	37	25	0	213
7:45 AM	0	0	0	0	24	0	14	0	0	109	30	0	0	56	26	0	259
8:00 AM	0	0	0	0	30	0	14	0	0	91	35	0	0	60	20	0	250
8:15 AM	0	0	0	0	15	0	20	0	0	47	16	0	0	64	20	0	182
8:30 AM	0	0	0	0	14	0	10	0	0	43	24	0	0	42	19	0	152
8:45 AM	0	0	0	0	15	0	13	0	0	57	26	0	0	43	14	0	168
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	148	0	118	0	0	536	222	0	0	381	175	0	1580
APPROACH %'s :					55.64%	0.00%	44.36%	0.00%	0.00%	70.71%	29.29%	0.00%	0.00%	68.53%	31.47%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	87	0	61	0	0	350	126	0	0	202	87	0	913
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.725	0.000	0.803	0.000	0.000	0.803	0.900	0.000	0.000	0.842	0.837	0.000	0.881
					0.841				0.856				0.881				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	31	0	20	0	0	82	31	0	0	100	21	0	285
4:15 PM	0	0	0	0	24	0	20	0	0	57	28	0	0	90	16	0	235
4:30 PM	0	0	0	0	19	0	26	0	0	69	15	0	0	92	18	0	239
4:45 PM	0	0	0	0	22	0	30	0	0	72	33	0	0	102	19	0	278
5:00 PM	0	0	0	0	23	0	20	0	0	68	24	0	0	102	20	0	257
5:15 PM	0	0	0	0	27	0	29	0	0	83	24	0	0	87	11	0	261
5:30 PM	0	0	0	0	34	0	26	0	0	78	24	0	0	100	15	0	277
5:45 PM	0	0	0	0	19	0	22	0	0	58	28	0	0	97	14	0	238
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	199	0	193	0	0	567	207	0	0	770	134	0	2070
APPROACH %'s :					50.77%	0.00%	49.23%	0.00%	0.00%	73.26%	26.74%	0.00%	0.00%	85.18%	14.82%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	106	0	105	0	0	301	105	0	0	391	65	0	1073
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.779	0.000	0.875	0.000	0.000	0.907	0.795	0.000	0.000	0.958	0.813	0.000	0.965
					0.879				0.949				0.934				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (SB/EB/WB)

Project ID: 21-100017-006
Date: 9/2/2021

Cars

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	15	0	6	0	0	36	19	0	0	21	33	0	130
7:15 AM	0	0	0	0	10	0	9	0	0	63	21	0	0	41	15	0	159
7:30 AM	0	0	0	0	20	0	12	0	0	65	22	0	0	28	22	0	169
7:45 AM	0	0	0	0	21	0	9	0	0	105	23	0	0	52	25	0	235
8:00 AM	0	0	0	0	28	0	13	0	0	82	23	0	0	55	20	0	221
8:15 AM	0	0	0	0	14	0	13	0	0	40	12	0	0	56	16	0	151
8:30 AM	0	0	0	0	11	0	6	0	0	38	15	0	0	37	18	0	125
8:45 AM	0	0	0	0	13	0	7	0	0	54	20	0	0	36	13	0	143
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	132	0	75	0	0	483	155	0	0	326	162	0	1333
APPROACH %'s :					63.77%	0.00%	36.23%	0.00%	0.00%	75.71%	24.29%	0.00%	0.00%	66.80%	33.20%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	79	0	43	0	0	315	89	0	0	176	82	0	784
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.705	0.000	0.827	0.000	0.000	0.750	0.967	0.000	0.000	0.800	0.820	0.000	0.834
					0.744				0.789				0.838				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	27	0	13	0	0	75	20	0	0	89	18	0	242
4:15 PM	0	0	0	0	22	0	17	0	0	52	21	0	0	88	15	0	215
4:30 PM	0	0	0	0	18	0	21	0	0	65	13	0	0	89	14	0	220
4:45 PM	0	0	0	0	21	0	25	0	0	64	27	0	0	93	17	0	247
5:00 PM	0	0	0	0	21	0	16	0	0	63	18	0	0	92	20	0	230
5:15 PM	0	0	0	0	27	0	21	0	0	77	21	0	0	83	11	0	240
5:30 PM	0	0	0	0	32	0	22	0	0	74	20	0	0	96	14	0	258
5:45 PM	0	0	0	0	17	0	16	0	0	56	22	0	0	94	14	0	219
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	185	0	151	0	0	526	162	0	0	724	123	0	1871
APPROACH %'s :					55.06%	0.00%	44.94%	0.00%	0.00%	76.45%	23.55%	0.00%	0.00%	85.48%	14.52%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	101	0	84	0	0	278	86	0	0	364	62	0	975
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.789	0.000	0.840	0.000	0.000	0.903	0.796	0.000	0.000	0.948	0.775	0.000	0.945
					0.856				0.929				0.951				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (SB/EB/WB)

Project ID: 21-100017-006
Date: 9/2/2021

Bikes

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
									0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (SB/EB/WB)

Project ID: 21-100017-006
Date: 9/2/2021

HT

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	8	0	0	3	11	0	0	9	2	0	35
7:15 AM	0	0	0	0	1	0	5	0	0	10	7	0	0	8	1	0	32
7:30 AM	0	0	0	0	2	0	7	0	0	12	11	0	0	9	3	0	44
7:45 AM	0	0	0	0	3	0	5	0	0	4	7	0	0	4	1	0	24
8:00 AM	0	0	0	0	2	0	1	0	0	9	12	0	0	5	0	0	29
8:15 AM	0	0	0	0	1	0	7	0	0	7	4	0	0	8	4	0	31
8:30 AM	0	0	0	0	3	0	4	0	0	5	9	0	0	5	1	0	27
8:45 AM	0	0	0	0	2	0	6	0	0	3	6	0	0	7	1	0	25
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	16	0	43	0	0	53	67	0	0	55	13	0	247
APPROACH %'s :					27.12%	0.00%	72.88%	0.00%	0.00%	44.17%	55.83%	0.00%	0.00%	80.88%	19.12%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	8	0	18	0	0	35	37	0	0	26	5	0	129
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.667	0.000	0.643	0.000	0.000	0.729	0.771	0.000	0.000	0.722	0.417	0.000	0.733
					0.722				0.783				0.646				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	4	0	7	0	0	7	11	0	0	11	3	0	43
4:15 PM	0	0	0	0	2	0	3	0	0	5	7	0	0	2	1	0	20
4:30 PM	0	0	0	0	1	0	5	0	0	4	2	0	0	3	4	0	19
4:45 PM	0	0	0	0	1	0	5	0	0	8	6	0	0	9	2	0	31
5:00 PM	0	0	0	0	2	0	4	0	0	5	6	0	0	10	0	0	27
5:15 PM	0	0	0	0	0	0	8	0	0	6	3	0	0	4	0	0	21
5:30 PM	0	0	0	0	2	0	4	0	0	4	4	0	0	4	1	0	19
5:45 PM	0	0	0	0	2	0	6	0	0	2	6	0	0	3	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	14	0	42	0	0	41	45	0	0	46	11	0	199
APPROACH %'s :					25.00%	0.00%	75.00%	0.00%	0.00%	47.67%	52.33%	0.00%	0.00%	80.70%	19.30%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	5	0	21	0	0	23	19	0	0	27	3	0	98
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.625	0.000	0.656	0.000	0.000	0.719	0.792	0.000	0.000	0.675	0.375	0.000	0.790
					0.813				0.750				0.682				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Newville Rd
City: Orland

Project ID: 21-100017-006
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 SB Ramps		I-5 SB Ramps		Newville Rd		Newville Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	1
APPROACH %'s :	100.00%	0.00%							
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	2
4:15 PM	0	1	0	0	0	0	0	0	1
4:30 PM	1	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	0	0	0	4
APPROACH %'s :	25.00%	75.00%							
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

I-5 NB Ramps & Newville Rd

Peak Hour Turning Movement Count

ID: 21-100017-007
City: Orland

Day: Thursday
Date: 09/02/2021

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

I-5 NB Ramps – SOUTHBOUND

AM	0	0	0	0	85
NOON	0	0	0	0	0
PM	0	0	0	0	126
	0	0	0	0	

Newville Rd – EASTBOUND

	AM	NOON	PM	
	291	0	452	
	0	0	0	0
	0	0	0	0
	390	0	342	0
	43	0	64	0

Newville Rd – WESTBOUND

	PM	NOON	AM
0	126	0	85
0	363	0	245
0	0	0	0
0	0	0	0
	477	0	482

I-5 NB Ramps – NORTHBOUND

		0	0	0	0
PM	64	0	89	0	135
NOON	0	0	0	0	0
AM	43	0	46	0	92

CONTROL

3-Way Stop (NB/EB/WB)

	AM	NOON	PM
TEV	901	0	1119
PHF	0.87		0.96

Cars (AM)

	U-turn/Left	Thru	Right/Left
SB	0	0	0
EB	0	367	23
WB	71	234	0
NB	25	0	78

HT (AM)

SB	0	0	0
EB	0	23	20
WB	14	11	0
NB	21	0	14

Cars (NOON)

All movements: N/A

HT (NOON)

All movements: N/A

Cars (PM)

SB	0	0	0
EB	0	331	46
WB	120	358	0
NB	65	0	132

HT (PM)

SB	0	0	0
EB	0	11	18
WB	6	5	0
NB	24	0	3

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0	0	0
South	0	0	0
East	0	0	0
West	0	0	0
Diagonals	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (NB/EB/WB)

Project ID: 21-100017-007
Date: 9/2/2021

Total

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	0	18	0	0	0	0	0	0	44	9	0	0	55	20	0	157
7:15 AM	13	0	26	0	0	0	0	0	0	77	10	0	0	51	26	0	203
7:30 AM	15	0	21	0	0	0	0	0	0	81	16	0	0	52	20	0	205
7:45 AM	7	0	26	0	0	0	0	0	0	129	6	0	0	70	21	0	259
8:00 AM	11	0	19	0	0	0	0	0	0	103	11	0	0	72	18	0	234
8:15 AM	7	0	14	0	0	0	0	0	0	56	11	0	0	77	23	0	188
8:30 AM	7	0	19	0	0	0	0	0	0	49	5	0	0	51	16	0	147
8:45 AM	6	0	11	0	0	0	0	0	0	63	11	0	0	55	22	0	168
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	77	0	154	0	0	0	0	0	0	602	79	0	0	483	166	0	1561
APPROACH %'s :	33.33%	0.00%	66.67%	0.00%					0.00%	88.40%	11.60%	0.00%	0.00%	74.42%	25.58%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	46	0	92	0	0	0	0	0	0	390	43	0	0	245	85	0	901
PEAK HR FACTOR :	0.767	0.000	0.885	0.000	0.000	0.000	0.000	0.000	0.000	0.756	0.672	0.000	0.000	0.851	0.817	0.000	0.870
	0.885								0.802				0.907				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	23	0	25	0	0	0	0	0	0	92	18	0	0	100	26	0	284
4:15 PM	11	0	30	0	0	0	0	0	0	68	12	0	0	93	22	0	236
4:30 PM	11	0	26	0	0	0	0	0	0	71	19	0	0	104	35	0	266
4:45 PM	20	0	38	0	0	0	0	0	0	75	18	0	0	97	25	0	273
5:00 PM	28	0	26	0	0	0	0	0	0	80	14	0	0	93	32	0	273
5:15 PM	24	0	31	0	0	0	0	0	0	91	18	0	0	78	40	0	282
5:30 PM	17	0	40	0	0	0	0	0	0	96	14	0	0	95	29	0	291
5:45 PM	18	0	15	0	0	0	0	0	0	68	11	0	0	95	24	0	231
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	152	0	231	0	0	0	0	0	0	641	124	0	0	755	233	0	2136
APPROACH %'s :	39.69%	0.00%	60.31%	0.00%					0.00%	83.79%	16.21%	0.00%	0.00%	76.42%	23.58%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	89	0	135	0	0	0	0	0	0	342	64	0	0	363	126	0	1119
PEAK HR FACTOR :	0.795	0.000	0.844	0.000	0.000	0.000	0.000	0.000	0.000	0.891	0.889	0.000	0.000	0.936	0.788	0.000	0.961
	0.966								0.923				0.978				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (NB/EB/WB)

Project ID: 21-100017-007
Date: 9/2/2021

Cars

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	16	0	0	0	0	0	0	42	6	0	0	54	18	0	137
7:15 AM	8	0	21	0	0	0	0	0	0	71	5	0	0	47	23	0	175
7:30 AM	6	0	21	0	0	0	0	0	0	76	8	0	0	48	16	0	175
7:45 AM	5	0	19	0	0	0	0	0	0	122	5	0	0	68	17	0	236
8:00 AM	6	0	17	0	0	0	0	0	0	98	5	0	0	71	15	0	212
8:15 AM	2	0	14	0	0	0	0	0	0	54	6	0	0	71	21	0	168
8:30 AM	4	0	18	0	0	0	0	0	0	43	2	0	0	48	15	0	130
8:45 AM	3	0	8	0	0	0	0	0	0	61	9	0	0	49	20	0	150
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	0	134	0	0	0	0	0	0	567	46	0	0	456	145	0	1383
APPROACH %'s :	20.71%	0.00%	79.29%	0.00%					0.00%	92.50%	7.50%	0.00%	0.00%	75.87%	24.13%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	25	0	78	0	0	0	0	0	0	367	23	0	0	234	71	0	798
PEAK HR FACTOR :	0.78	0.000	0.929	0.000	0.000	0.000	0.000	0.000	0.000	0.752	0.719	0.000	0.000	0.824	0.772	0.000	0.845
	0.888								0.768				0.887				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	14	0	22	0	0	0	0	0	0	89	12	0	0	95	25	0	257
4:15 PM	8	0	29	0	0	0	0	0	0	65	6	0	0	93	20	0	221
4:30 PM	9	0	24	0	0	0	0	0	0	70	16	0	0	98	31	0	248
4:45 PM	11	0	37	0	0	0	0	0	0	72	11	0	0	96	24	0	251
5:00 PM	19	0	25	0	0	0	0	0	0	77	10	0	0	92	29	0	252
5:15 PM	21	0	31	0	0	0	0	0	0	90	13	0	0	77	39	0	271
5:30 PM	14	0	39	0	0	0	0	0	0	92	12	0	0	93	28	0	278
5:45 PM	16	0	14	0	0	0	0	0	0	66	9	0	0	94	23	0	222
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	112	0	221	0	0	0	0	0	0	621	89	0	0	738	219	0	2000
APPROACH %'s :	33.63%	0.00%	66.37%	0.00%					0.00%	87.46%	12.54%	0.00%	0.00%	77.12%	22.88%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	65	0	132	0	0	0	0	0	0	331	46	0	0	358	120	0	1052
PEAK HR FACTOR :	0.77	0.000	0.846	0.000	0.000	0.000	0.000	0.000	0.000	0.899	0.885	0.000	0.000	0.932	0.769	0.000	0.946
	0.929								0.906				0.988				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (NB/EB/WB)

Project ID: 21-100017-007
Date: 9/2/2021

Bikes

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
									0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Newville Rd
City: Orland
Control: 3-Way Stop (NB/EB/WB)

Project ID: 21-100017-007
Date: 9/2/2021

HT

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Newville Rd				Newville Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	0	2	0	0	0	0	0	0	2	3	0	0	1	2	0	20
7:15 AM	5	0	5	0	0	0	0	0	0	6	5	0	0	4	3	0	28
7:30 AM	9	0	0	0	0	0	0	0	0	5	8	0	0	4	4	0	30
7:45 AM	2	0	7	0	0	0	0	0	0	7	1	0	0	2	4	0	23
8:00 AM	5	0	2	0	0	0	0	0	0	5	6	0	0	1	3	0	22
8:15 AM	5	0	0	0	0	0	0	0	0	2	5	0	0	6	2	0	20
8:30 AM	3	0	1	0	0	0	0	0	0	6	3	0	0	3	1	0	17
8:45 AM	3	0	3	0	0	0	0	0	0	2	2	0	0	6	2	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	42	0	20	0	0	0	0	0	0	35	33	0	0	27	21	0	178
APPROACH %'s :	67.74%	0.00%	32.26%	0.00%					0.00%	51.47%	48.53%	0.00%	0.00%	56.25%	43.75%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	21	0	14	0	0	0	0	0	0	23	20	0	0	11	14	0	103
PEAK HR FACTOR :	0.583	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.625	0.000	0.000	0.688	0.875	0.000	0.858
	0.875								0.827				0.781				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	0	3	0	0	0	0	0	0	3	6	0	0	5	1	0	27
4:15 PM	3	0	1	0	0	0	0	0	0	3	6	0	0	0	2	0	15
4:30 PM	2	0	2	0	0	0	0	0	0	1	3	0	0	6	4	0	18
4:45 PM	9	0	1	0	0	0	0	0	0	3	7	0	0	1	1	0	22
5:00 PM	9	0	1	0	0	0	0	0	0	3	4	0	0	1	3	0	21
5:15 PM	3	0	0	0	0	0	0	0	0	1	5	0	0	1	1	0	11
5:30 PM	3	0	1	0	0	0	0	0	0	4	2	0	0	2	1	0	13
5:45 PM	2	0	1	0	0	0	0	0	0	2	2	0	0	1	1	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	40	0	10	0	0	0	0	0	0	20	35	0	0	17	14	0	136
APPROACH %'s :	80.00%	0.00%	20.00%	0.00%					0.00%	36.36%	63.64%	0.00%	0.00%	54.84%	45.16%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	24	0	3	0	0	0	0	0	0	11	18	0	0	5	6	0	67
PEAK HR FACTOR :	0.67	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.643	0.000	0.000	0.625	0.500	0.000	0.761
	0.675								0.725				0.688				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Newville Rd
City: Orland

Project ID: 21-100017-007
Date: 9/2/2021

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 NB Ramps		I-5 NB Ramps		Newville Rd		Newville Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Orland: i-5 / sr 32 intercahgne area traffic volumes: compare 2018 and 2021

AM PEAK

		NB LEFT	NB THR	NB RT	SB LEFT	SB THRU	SB RIGHT	EB LFT	EB THRU	EB RT	WB LEFT	WB THRU	WB RT	sum 21 sum 18	2021/2018
NEWVILLE / COMMERCE	2021	4	3	145	54	8	9	13	276	9	114	104	46	785	102%
	2018 ESTIMATED	3	4	150	53	3	3	12	228	15	136	152	11	770	
												124			
	DIFF	1	-1	-5	1	5	6	1	48	-6	-22	-48	35	15	
SR 32 / I-5 SB RAMPS	2021	0	0	0	87	0	61	0	350	126	0	202	87	913	106%
	2018	0	0	0	66	0	62	0	365	68	0	218	79	858	
												222			
	DIFF	0	0	0	21	0	-1	0	-15	58	0	-16	8	55	
SR 32 / I-5 NB RAMPS	2021	46		92	0	0	0	0	390	43	0	245	85	901	107%
		30		54	0	0	0	0	380	47	0	273	62	846	
												265			
		16	#VALUE!	38	0	0	0	0	10	-4	0	-28	23	55	

PM PEAK

		NB LEFT	NB THR	NB RT	SB LEFT	SB THRU	SB RIGHT	EB LFT	EB THRU	EB RT	WB LEFT	WB THRU	WB RT		
NEWVILLE / COMMERCE	2021	18	0	158	64	10	15	13	182	9	181	243	74	967	102%
	2018 ESTIMATED	16	7	144	58	6	14	9	192	14	150	271	71	952	
												263			
	DIFF	2	-7	14	6	4	1	4	-10	-5	31	-28	3	15	
SR 32 / I-5 SB RAMPS	2021	0	0	0	100	0	105	0	301	105	0	391	65	1067	103%
	2018	0	0	0	97	0	83	0	313	81	0	409	57	1040	
												411			
	DIFF	0	0	0	3	0	22	0	-12	24	0	-18	8	27	
SR 32 / I-5 NB RAMPS	2021	89		135	0	0	0	0	342	64	0	363	126	1119	105%
		60		99	0	0	0	0	357	48	0	411	88	1063	
												383			
		29	#VALUE!	36	0	0	0	0	-15	16	0	-48	38	56	

1: COUNTY ROAD 13 & COUNTY ROAD HH Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	1.4	1.0
Total Del/Veh (s)	4.1	2.6	5.8	2.9	3.6

2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1
Total Del/Veh (s)	3.2	1.9	0.4	1.7

3: COUNTY ROAD HH & CENTRAL FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	2.8	0.5	0.4	1.0

4: COUNTY ROAD HH & NORTH FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.9	1.0	1.0	1.1

5: COUNTY ROAD HH & NORTH PROJECT ACCESS Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.9	1.0	1.9

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	1.0	0.1	0.3
Total Del/Veh (s)	11.5	6.0	1.5	5.4	6.9

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	7.3	7.4	5.8	7.0

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	1.5	0.3
Total Del/Veh (s)	8.5	7.4	4.7	7.5

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	9.0	2.3	6.3

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.8	0.6	1.8

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.9	2.7	1.7

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	2.7	0.7	1.8

Total Zone Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	101.9

Intersection: 1: COUNTY ROAD 13 & COUNTY ROAD HH

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	26	59	61	88	66
Average Queue (ft)	1	9	20	37	19
95th Queue (ft)	12	39	49	81	57
Link Distance (ft)	336	274	329		243
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	106	14
Average Queue (ft)	50	1
95th Queue (ft)	99	7
Link Distance (ft)	170	106
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: COUNTY ROAD HH & CENTRAL FLYING J

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	54	3	26
Average Queue (ft)	25	0	1
95th Queue (ft)	46	3	10
Link Distance (ft)	121	106	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 4: COUNTY ROAD HH & NORTH FLYING J

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	36	47	41
Average Queue (ft)	14	4	7
95th Queue (ft)	40	27	30
Link Distance (ft)	114	81	67
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: COUNTY ROAD HH & NORTH PROJECT ACCESS

Movement	NB	SB
Directions Served	T	T
Maximum Queue (ft)	87	6
Average Queue (ft)	14	0
95th Queue (ft)	56	6
Link Distance (ft)	67	30
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	66	116	99	78	30	63
Average Queue (ft)	10	58	51	35	6	30
95th Queue (ft)	38	94	81	60	25	53
Link Distance (ft)		3858		295	30	1168
Upstream Blk Time (%)					1	
Queuing Penalty (veh)					1	
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	0	7				
Queuing Penalty (veh)	0	1				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	117	92	127
Average Queue (ft)	64	53	65
95th Queue (ft)	101	84	108
Link Distance (ft)	121	186	622
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	119	91	90	83
Average Queue (ft)	62	52	36	42
95th Queue (ft)	99	80	76	72
Link Distance (ft)	206	187		649
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	T
Maximum Queue (ft)	63
Average Queue (ft)	5
95th Queue (ft)	32
Link Distance (ft)	295
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 4

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	0	0	6	0	28	0	40	16	2
Future Vol, veh/h	2	0	0	0	0	6	0	28	0	40	16	2
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
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	2	0	0	0	0	7	0	32	0	45	18	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.4	6.6	7.3	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	89%
Vol Right, %	0%	0%	100%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	2	6	40	18
LT Vol	0	2	0	40	0
Through Vol	28	0	0	0	16
RT Vol	0	0	6	0	2
Lane Flow Rate	32	2	7	45	20
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.036	0.003	0.007	0.08	0.03
Departure Headway (Hd)	4.097	4.416	3.611	6.307	5.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	870	815	997	571	678
Service Time	2.142	2.416	1.611	4.015	3.012
HCM Lane V/C Ratio	0.037	0.002	0.007	0.079	0.029
HCM Control Delay	7.3	7.4	6.6	9.6	8.2
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.3	0.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	48	0	35	0	12	55	0
Future Vol, veh/h	0	0	0	3	0	48	0	35	0	12	55	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	88	92	92	88	92
Heavy Vehicles, %	15	2	2	2	2	90	2	10	2	10	2	2
Mvmt Flow	0	0	0	3	0	52	0	40	0	13	63	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	155	-	63	129	129	40	63	0	0	40	0	0
Stage 1	89	-	-	40	40	-	-	-	-	-	-	-
Stage 2	66	-	-	89	89	-	-	-	-	-	-	-
Critical Hdwy	7.25	-	6.22	7.12	6.52	7.1	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	-	3.318	3.518	4.018	4.11	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	783	0	1002	844	762	828	1540	-	-	1520	-	-
Stage 1	887	0	-	975	862	-	-	-	-	-	-	-
Stage 2	913	0	-	918	821	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	729	-	1002	838	755	828	1540	-	-	1520	-	-
Mov Cap-2 Maneuver	729	-	-	838	755	-	-	-	-	-	-	-
Stage 1	887	-	-	975	862	-	-	-	-	-	-	-
Stage 2	855	-	-	910	814	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.7	0	1.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	-	-	829	1520	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.067	0.009	-	-
HCM Control Delay (s)	0	-	-	0	0	9.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	55	77	6	18	63
Future Vol, veh/h	4	55	77	6	18	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	10
Mvmt Flow	4	60	88	7	20	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	204	92	0	0	95	0
Stage 1	92	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	784	965	-	-	1499	-
Stage 1	932	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	774	965	-	-	1499	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	949	1499	-
HCM Lane V/C Ratio	-	-	0.068	0.013	-
HCM Control Delay (s)	-	-	9.1	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	135	0	56	77
Future Vol, veh/h	0	16	135	0	56	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	0	17	153	0	61	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	363	77	0	0	153	0
Stage 1	153	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	623	969	-	-	1426	-
Stage 1	860	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	596	969	-	-	1426	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1426	-
HCM Lane V/C Ratio	-	-	0.018	0.043	-
HCM Control Delay (s)	-	-	8.8	7.6	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	151	133	0
Future Vol, veh/h	0	0	0	151	133	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	15	10	15
Mvmt Flow	0	0	0	164	145	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	73	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	974	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	974	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	276	9	115	124	46	4	3	145	54	8	9
Future Vol, veh/h	13	276	9	115	124	46	4	3	145	54	8	9
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
Heavy Vehicles, %	8	5	2	35	5	2	2	2	38	6	25	2
Mvmt Flow	15	314	10	131	141	52	5	3	165	61	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	14.6	11.2	10.7	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	57%	0%	100%	0%	100%	0%	76%
Vol Thru, %	43%	0%	0%	97%	0%	73%	11%
Vol Right, %	0%	100%	0%	3%	0%	27%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	7	145	13	285	115	170	71
LT Vol	4	0	13	0	115	0	54
Through Vol	3	0	0	276	0	124	8
RT Vol	0	145	0	9	0	46	9
Lane Flow Rate	8	165	15	324	131	193	81
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.015	0.266	0.026	0.523	0.249	0.303	0.153
Departure Headway (Hd)	6.809	5.809	6.396	5.816	6.86	5.646	6.847
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	525	618	560	622	524	637	523
Service Time	4.554	3.553	4.13	3.55	4.596	3.381	4.899
HCM Lane V/C Ratio	0.015	0.267	0.027	0.521	0.25	0.303	0.155
HCM Control Delay	9.7	10.7	9.3	14.8	11.9	10.8	11.1
HCM Lane LOS	A	B	A	B	B	B	B
HCM 95th-tile Q	0	1.1	0.1	3	1	1.3	0.5

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	350	222	0	87	61
Future Vol, veh/h	0	350	222	0	87	61
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	10	13	10	18	70
Mvmt Flow	0	398	252	0	99	69
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	13.5	10.9	10.7
HCM LOS	B	B	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	59%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	41%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	350	222	148
LT Vol	0	0	87
Through Vol	350	222	0
RT Vol	0	0	61
Lane Flow Rate	398	252	168
Geometry Grp	1	1	1
Degree of Util (X)	0.537	0.355	0.261
Departure Headway (Hd)	4.857	5.07	5.597
Convergence, Y/N	Yes	Yes	Yes
Cap	736	704	636
Service Time	2.921	3.145	3.691
HCM Lane V/C Ratio	0.541	0.358	0.264
HCM Control Delay	13.5	10.9	10.7
HCM Lane LOS	B	B	B
HCM 95th-tile Q	3.2	1.6	1

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	390	0	0	265	46	92
Future Vol, veh/h	390	0	0	265	46	92
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	4	46	15
Mvmt Flow	443	0	0	301	52	105
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	14.8	11.6	10.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	92	390	265
LT Vol	46	0	0	0
Through Vol	0	0	390	265
RT Vol	0	92	0	0
Lane Flow Rate	52	105	443	301
Geometry Grp	7	7	2	2
Degree of Util (X)	0.111	0.17	0.594	0.415
Departure Headway (Hd)	7.614	5.86	4.829	4.956
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	474	616	740	720
Service Time	5.314	3.56	2.908	3.044
HCM Lane V/C Ratio	0.11	0.17	0.599	0.418
HCM Control Delay	11.3	9.8	14.8	11.6
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	0.4	0.6	4	2

1: COMMERCE LN & COUNTY ROAD 13 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.1
Total Del/Veh (s)	4.6	2.5	5.9	4.5	4.9

2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	2.9	2.1	0.9	1.5

4: COMMERCE LN & NORTH Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.7	0.3	0.9	0.9

5: COMMERCE LN & NORTH PROJECT ACCESS Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	0.7	1.0	0.8

6: COMMERCE LN & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.3	0.1	0.2
Total Del/Veh (s)	9.7	7.2	2.0	5.8	6.4

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	7.2	8.8	6.1	7.6

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	1.7	0.4
Total Del/Veh (s)	8.4	8.5	5.3	7.7

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	6.9	2.5	4.5

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.6	1.0	1.7

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.7	2.7	1.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.4	0.8	1.6

Total Zone Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	87.3

Intersection: 1: COMMERCE LN & COUNTY ROAD 13

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	23	56	54	89	91
Average Queue (ft)	1	6	24	29	36
95th Queue (ft)	10	31	51	75	78
Link Distance (ft)	626	307	366		115
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	50	83	25
Average Queue (ft)	3	40	2
95th Queue (ft)	25	84	17
Link Distance (ft)	400	400	220
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: COMMERCE LN & NORTH

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	L	T
Maximum Queue (ft)	56	16	14	49	14
Average Queue (ft)	23	1	1	14	0
95th Queue (ft)	49	10	7	42	8
Link Distance (ft)	124	93	93	44	44
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: COMMERCE LN & NORTH PROJECT ACCESS

Movement	NB	SB
Directions Served	T	T
Maximum Queue (ft)	44	20
Average Queue (ft)	4	1
95th Queue (ft)	25	10
Link Distance (ft)	44	67
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: COMMERCE LN & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	46	95	105	91	43	100	70
Average Queue (ft)	10	51	54	50	17	21	35
95th Queue (ft)	34	80	85	79	42	76	59
Link Distance (ft)		3862		308	67	67	943
Upstream Blk Time (%)					0	1	
Queuing Penalty (veh)					0	1	
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	4	0				
Queuing Penalty (veh)	0	1	0				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	115	121	111
Average Queue (ft)	60	67	57
95th Queue (ft)	97	106	91
Link Distance (ft)	120	179	622
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	102	134	94	70
Average Queue (ft)	54	62	45	41
95th Queue (ft)	84	103	79	63
Link Distance (ft)	199	187		649
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	T
Maximum Queue (ft)	53
Average Queue (ft)	3
95th Queue (ft)	24
Link Distance (ft)	308
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	WB
Directions Served	TR
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	7
Link Distance (ft)	563
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 3

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	0	4	0	38	0	26	42	1
Future Vol, veh/h	1	0	0	0	0	4	0	38	0	26	42	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	1	0	0	0	0	4	0	41	0	28	46	1
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.5	6.7	7.3	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	98%
Vol Right, %	0%	0%	100%	0%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	1	4	26	43
LT Vol	0	1	0	26	0
Through Vol	38	0	0	0	42
RT Vol	0	0	4	0	1
Lane Flow Rate	41	1	4	28	47
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.047	0.001	0.004	0.05	0.07
Departure Headway (Hd)	4.098	4.451	3.647	6.306	5.364
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	870	809	987	571	671
Service Time	2.14	2.451	1.647	4.011	3.069
HCM Lane V/C Ratio	0.047	0.001	0.004	0.049	0.07
HCM Control Delay	7.3	7.5	6.7	9.3	8.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.2	0.2

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	0	34	0	44	0	18	67	0
Future Vol, veh/h	0	0	0	2	0	34	0	44	0	18	67	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	0	-	-	0	-	-
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	100	2	100	2	10	2	100	70	2
Mvmt Flow	0	0	0	2	0	37	0	48	0	20	73	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	180	-	73	161	-	48	73	0	0	48	0	0
Stage 1	113	-	-	48	-	-	-	-	-	-	-	-
Stage 2	67	-	-	113	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	8.1	-	7.2	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	-	-	7.1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	7.1	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	4.4	-	4.2	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	782	0	989	627	0	801	1527	-	-	1108	-	0
Stage 1	892	0	-	766	0	-	-	-	-	-	-	0
Stage 2	943	0	-	701	0	-	-	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	736	-	989	618	-	801	1527	-	-	1108	-	-
Mov Cap-2 Maneuver	736	-	-	618	-	-	-	-	-	-	-	-
Stage 1	892	-	-	766	-	-	-	-	-	-	-	-
Stage 2	899	-	-	688	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.8	0	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	1527	-	-	-	-	618	801	1108	-
HCM Lane V/C Ratio	-	-	-	-	-	0.004	0.046	0.018	-
HCM Control Delay (s)	0	-	-	0	0	10.8	9.7	8.3	0
HCM Lane LOS	A	-	-	A	A	B	A	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	40	148	2	98	104
Future Vol, veh/h	0	40	148	2	98	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	40	2	2	40
Mvmt Flow	0	43	161	2	107	113

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	489	82	0	0	163	0
Stage 1	162	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	523	962	-	-	1414	-
Stage 1	851	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	483	962	-	-	1414	-
Mov Cap-2 Maneuver	483	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	962	1414	-
HCM Lane V/C Ratio	-	-	0.045	0.075	-
HCM Control Delay (s)	-	-	8.9	7.8	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	188	202	0
Future Vol, veh/h	0	0	0	188	202	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	204	220	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	110	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	922	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	922	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	182	9	181	263	74	18	9	158	64	10	15
Future Vol, veh/h	13	182	9	181	263	74	18	9	158	64	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	23	2	3	6	2	23	5	2	2
Mvmt Flow	14	198	10	197	286	80	20	10	172	70	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	12.4	15.1	11.3	11.8
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	67%	0%	100%	0%	100%	0%	72%
Vol Thru, %	33%	0%	0%	95%	0%	78%	11%
Vol Right, %	0%	100%	0%	5%	0%	22%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	158	13	191	181	337	89
LT Vol	18	0	13	0	181	0	64
Through Vol	9	0	0	182	0	263	10
RT Vol	0	158	0	9	0	74	15
Lane Flow Rate	29	172	14	208	197	366	97
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.059	0.291	0.027	0.362	0.367	0.578	0.19
Departure Headway (Hd)	7.224	6.104	6.814	6.272	6.708	5.685	7.068
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	587	524	571	535	634	506
Service Time	4.985	3.865	4.573	4.031	4.454	3.43	5.136
HCM Lane V/C Ratio	0.059	0.293	0.027	0.364	0.368	0.577	0.192
HCM Control Delay	10.4	11.4	9.8	12.6	13.3	16	11.8
HCM Lane LOS	B	B	A	B	B	C	B
HCM 95th-tile Q	0.2	1.2	0.1	1.6	1.7	3.7	0.7

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	301	391	0	106	105
Future Vol, veh/h	0	301	391	0	106	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	8	7	10	5	20
Mvmt Flow	0	327	425	0	115	114
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	13.3	16.1	11.9
HCM LOS	B	C	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	50%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	50%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	301	391	211
LT Vol	0	0	106
Through Vol	301	391	0
RT Vol	0	0	105
Lane Flow Rate	327	425	229
Geometry Grp	1	1	1
Degree of Util (X)	0.484	0.612	0.362
Departure Headway (Hd)	5.325	5.184	5.685
Convergence, Y/N	Yes	Yes	Yes
Cap	677	697	633
Service Time	3.356	3.212	3.723
HCM Lane V/C Ratio	0.483	0.61	0.362
HCM Control Delay	13.3	16.1	11.9
HCM Lane LOS	B	C	B
HCM 95th-tile Q	2.7	4.2	1.6

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	342	0	0	363	89	135
Future Vol, veh/h	342	0	0	363	89	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	2	2	2	27	2
Mvmt Flow	372	0	0	395	97	147
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	14.4	14.9	11
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	135	342	363
LT Vol	89	0	0	0
Through Vol	0	0	342	363
RT Vol	0	135	0	0
Lane Flow Rate	97	147	372	395
Geometry Grp	7	7	2	2
Degree of Util (X)	0.199	0.235	0.542	0.57
Departure Headway (Hd)	7.411	5.759	5.25	5.205
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	485	624	688	694
Service Time	5.147	3.493	3.281	3.235
HCM Lane V/C Ratio	0.2	0.236	0.541	0.569
HCM Control Delay	12	10.3	14.4	14.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.7	0.9	3.3	3.6

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	407	391	65	0	0
Future Vol, veh/h	0	407	391	65	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-5	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	8	7	5	2	2
Mvmt Flow	0	442	425	71	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	867	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	0	323	0
Stage 1	0	-	-	0	659	0
Stage 2	0	-	-	0	648	0
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	323	-
Mov Cap-2 Maneuver	-	-	-	-	323	-
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	0
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	342	64	0	452	0	0
Future Vol, veh/h	342	64	0	452	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	28	2	2	2	2
Mvmt Flow	372	70	0	491	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	863	-
Stage 1	-	-	-	-	372	-
Stage 2	-	-	-	-	491	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	-	0	0	-	325	0
Stage 1	-	0	0	-	697	0
Stage 2	-	0	0	-	615	0
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	325	-
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	697	-
Stage 2	-	-	-	-	615	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1: COUNTY ROAD 13 & COUNTY ROAD HH Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	1.3	0.9
Total Del/Veh (s)	3.5	2.2	5.8	2.9	3.6

2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	7.2	4.8	2.7	0.4	4.2

3: COUNTY ROAD HH & CENTRAL FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	7.6	2.5	0.5	2.7

4: COUNTY ROAD HH & NORTH FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	13.4	3.5	1.2	3.0

5: COUNTY ROAD HH & NORTH PROJECT ACCESS Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0
Total Del/Veh (s)	2.5	6.6	0.9	3.8

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.3	0.2	0.2
Total Del/Veh (s)	12.5	6.6	3.1	6.2	7.1

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1
Total Del/Veh (s)	8.5	8.3	6.1	8.0

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.1	0.4
Total Del/Veh (s)	9.7	8.4	5.4	8.4

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	12.6	2.4	8.3

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.0	0.8	2.0

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.1	2.7	1.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	2.8	0.8	2.0

Total Zone Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	167.0

Intersection: 1: COUNTY ROAD 13 & COUNTY ROAD HH

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	15	58	55	87	74
Average Queue (ft)	1	7	23	40	23
95th Queue (ft)	9	34	49	86	63
Link Distance (ft)	336	274	329		243
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	R	LTR	L	TR	L	TR
Maximum Queue (ft)	120	10	113	10	12	16	7
Average Queue (ft)	46	1	49	0	1	1	0
95th Queue (ft)	89	7	94	6	10	9	6
Link Distance (ft)	713	713	170	243	243	106	106
Upstream Blk Time (%)			0				
Queuing Penalty (veh)			0				
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: COUNTY ROAD HH & CENTRAL FLYING J

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	82	111	31	4
Average Queue (ft)	33	14	5	0
95th Queue (ft)	60	74	23	3
Link Distance (ft)	121	106		81
Upstream Blk Time (%)	0	2		
Queuing Penalty (veh)	0	5		
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 4: COUNTY ROAD HH & NORTH FLYING J

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	L	T
Maximum Queue (ft)	54	14	105	50	11
Average Queue (ft)	15	0	24	17	0
95th Queue (ft)	43	9	86	45	7
Link Distance (ft)	114	81	81	67	67
Upstream Blk Time (%)		0	5	0	
Queuing Penalty (veh)		0	8	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: COUNTY ROAD HH & NORTH PROJECT ACCESS

Movement	EB	NB	NB	SB
Directions Served	R	T	T	TR
Maximum Queue (ft)	20	27	140	23
Average Queue (ft)	3	1	54	1
95th Queue (ft)	13	12	127	11
Link Distance (ft)	422	67	67	30
Upstream Blk Time (%)			15	0
Queuing Penalty (veh)			24	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	71	142	139	97	30	85	80
Average Queue (ft)	12	63	70	38	14	8	31
95th Queue (ft)	45	110	116	76	38	56	62
Link Distance (ft)		3858		295	30	30	1168
Upstream Blk Time (%)					2	0	
Queuing Penalty (veh)					3	1	
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	10	0				
Queuing Penalty (veh)	0	1	0				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	132	112	131
Average Queue (ft)	84	60	64
95th Queue (ft)	125	98	104
Link Distance (ft)	121	186	622
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	3	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	155	120	115	84
Average Queue (ft)	73	65	45	42
95th Queue (ft)	121	101	82	73
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB
Directions Served	T	R	T
Maximum Queue (ft)	142	28	7
Average Queue (ft)	17	1	0
95th Queue (ft)	81	25	6
Link Distance (ft)	295	295	121
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	WB
Directions Served	TR
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	574
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	TR
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	9
Link Distance (ft)	574
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 47

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	0	0	6	0	32	0	40	20	2
Future Vol, veh/h	2	0	0	0	0	6	0	32	0	40	20	2
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
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	2	0	0	0	0	7	0	36	0	45	23	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.5	6.7	7.3	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	91%
Vol Right, %	0%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	2	6	40	22
LT Vol	0	2	0	40	0
Through Vol	32	0	0	0	20
RT Vol	0	0	6	0	2
Lane Flow Rate	36	2	7	45	25
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.041	0.003	0.007	0.08	0.037
Departure Headway (Hd)	4.1	4.438	3.633	6.309	5.32
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	868	811	991	570	676
Service Time	2.148	2.438	1.633	4.018	3.029
HCM Lane V/C Ratio	0.041	0.002	0.007	0.079	0.037
HCM Control Delay	7.3	7.5	6.7	9.6	8.2
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.3	0.1

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	0	3	3	0	48	4	35	0	12	56	80
Future Vol, veh/h	186	0	3	3	0	48	4	35	0	12	56	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	88	92	92	88	92
Heavy Vehicles, %	15	2	2	2	2	90	2	10	2	10	2	2
Mvmt Flow	202	0	3	3	0	52	4	40	0	13	64	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	208	-	108	183	225	40	151	0	0	40	0	0
Stage 1	134	-	-	48	48	-	-	-	-	-	-	-
Stage 2	74	-	-	135	177	-	-	-	-	-	-	-
Critical Hdwy	7.25	-	6.22	7.12	6.52	7.1	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	-	3.318	3.518	4.018	4.11	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	722	0	946	778	674	828	1430	-	-	1520	-	-
Stage 1	839	0	-	965	855	-	-	-	-	-	-	-
Stage 2	904	0	-	868	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	671	-	946	769	666	828	1430	-	-	1520	-	-
Mov Cap-2 Maneuver	671	-	-	769	666	-	-	-	-	-	-	-
Stage 1	836	-	-	962	852	-	-	-	-	-	-	-
Stage 2	845	-	-	858	746	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	9.7	0.7	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1430	-	-	671	946	824	1520	-	-
HCM Lane V/C Ratio	0.003	-	-	0.301	0.003	0.067	0.009	-	-
HCM Control Delay (s)	7.5	-	-	12.7	8.8	9.7	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0	0.2	0	-	-

Intersection						
Int Delay, s/veh	2.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	55	248	22	22	124
Future Vol, veh/h	24	55	248	22	22	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	10
Mvmt Flow	26	60	282	24	24	141

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	483	294	0	0	306	0
Stage 1	294	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	542	745	-	-	1255	-
Stage 1	756	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	532	745	-	-	1255	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	664	1255	-
HCM Lane V/C Ratio	-	-	0.129	0.019	-
HCM Control Delay (s)	-	-	11.2	7.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection						
Int Delay, s/veh	1.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	306	0	56	143
Future Vol, veh/h	0	16	306	0	56	143
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	0	17	348	0	61	163

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	633	174	0	0	348	0
Stage 1	348	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	428	840	-	-	1209	-
Stage 1	687	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	407	840	-	-	1209	-
Mov Cap-2 Maneuver	407	-	-	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	2.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	840	1209	-
HCM Lane V/C Ratio	-	-	0.021	0.05	-
HCM Control Delay (s)	-	-	9.4	8.1	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	322	194	113
Future Vol, veh/h	0	5	0	322	194	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	15	10	15
Mvmt Flow	0	5	0	350	211	123

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	167	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	848	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	848	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	848	-	-
HCM Lane V/C Ratio	-	0.006	-	-
HCM Control Delay (s)	-	9.3	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	262	23	275	110	46	18	3	302	54	8	9
Future Vol, veh/h	13	262	23	275	110	46	18	3	302	54	8	9
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
Heavy Vehicles, %	8	5	5	17	6	2	6	2	19	6	25	2
Mvmt Flow	15	298	26	313	125	52	20	3	343	61	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	20.9	19.8	19.3	13.3
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	86%	0%	100%	0%	100%	0%	76%
Vol Thru, %	14%	0%	0%	92%	0%	71%	11%
Vol Right, %	0%	100%	0%	8%	0%	29%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	302	13	285	275	156	71
LT Vol	18	0	13	0	275	0	54
Through Vol	3	0	0	262	0	110	8
RT Vol	0	302	0	23	0	46	9
Lane Flow Rate	24	343	15	324	312	177	81
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.052	0.628	0.032	0.635	0.659	0.329	0.186
Departure Headway (Hd)	7.815	6.592	7.684	7.061	7.597	6.683	8.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	458	549	466	512	475	537	431
Service Time	5.559	4.335	5.433	4.81	5.346	4.432	6.375
HCM Lane V/C Ratio	0.052	0.625	0.032	0.633	0.657	0.33	0.188
HCM Control Delay	11	19.9	10.7	21.4	23.9	12.7	13.3
HCM Lane LOS	B	C	B	C	C	B	B
HCM 95th-tile Q	0.2	4.3	0.1	4.4	4.7	1.4	0.7

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	459	332	0	87	110
Future Vol, veh/h	0	459	332	0	87	110
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	11	7	10	15	29
Mvmt Flow	0	522	377	0	99	125
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	24.9	15.9	13.1
HCM LOS	C	C	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	44%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	56%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	459	332	197
LT Vol	0	0	87
Through Vol	459	332	0
RT Vol	0	0	110
Lane Flow Rate	522	377	224
Geometry Grp	1	1	1
Degree of Util (X)	0.78	0.578	0.385
Departure Headway (Hd)	5.384	5.511	6.195
Convergence, Y/N	Yes	Yes	Yes
Cap	673	653	580
Service Time	3.425	3.558	4.253
HCM Lane V/C Ratio	0.776	0.577	0.386
HCM Control Delay	24.9	15.9	13.1
HCM Lane LOS	C	C	B
HCM 95th-tile Q	7.5	3.7	1.8

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	450	0	0	326	95	92
Future Vol, veh/h	450	0	0	326	95	92
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	5	22	15
Mvmt Flow	511	0	0	370	108	105
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	22	15.1	11.5
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	92	450	326
LT Vol	95	0	0	0
Through Vol	0	0	450	326
RT Vol	0	92	0	0
Lane Flow Rate	108	105	511	370
Geometry Grp	7	7	2	2
Degree of Util (X)	0.228	0.182	0.745	0.557
Departure Headway (Hd)	7.617	6.272	5.246	5.415
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	472	572	690	667
Service Time	5.363	4.017	3.278	3.449
HCM Lane V/C Ratio	0.229	0.184	0.741	0.555
HCM Control Delay	12.6	10.4	22	15.1
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	0.9	0.7	6.7	3.4

1: COMMERCE LN & COUNTY ROAD 13 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0
Total Del/Veh (s)	3.8	2.3	5.8	4.6	4.9

2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.1	0.1
Total Del/Veh (s)	6.8	3.9	2.4	0.9	3.4

4: COMMERCE LN & NORTH Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.0
Total Del/Veh (s)	3.8	0.7	1.1	1.1

5: COMMERCE LN & NORTH PROJECT ACCESS Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.4	0.0	0.2
Total Del/Veh (s)	2.6	1.3	0.9	1.1

6: COMMERCE LN & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.7	0.2	0.3
Total Del/Veh (s)	9.4	7.4	3.6	6.0	6.5

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1
Total Del/Veh (s)	8.5	11.4	7.1	9.4

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	7.7	1.9
Total Del/Veh (s)	9.6	11.9	15.4	11.9

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	8.7	2.6	5.4

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.3	0.2
Total Del/Veh (s)	2.8	7.6	5.3

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	0.9	4.2	2.6

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	3.9	2.0
Total Del/Veh (s)	2.6	2.7	2.7

Total Zone Performance

Denied Del/Veh (s)	3.0
Total Del/Veh (s)	99.2

Intersection: 1: COMMERCE LN & COUNTY ROAD 13

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	20	48	54	80	85
Average Queue (ft)	1	4	25	31	36
95th Queue (ft)	10	23	51	76	75
Link Distance (ft)	626	307	366		115
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	TR	L	TR	L	LTR
Maximum Queue (ft)	99	31	39	90	14	10	16	52
Average Queue (ft)	48	4	2	41	0	0	0	2
95th Queue (ft)	76	19	19	88	6	7	6	23
Link Distance (ft)	618	618	400	400	115	115	220	220
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: COMMERCE LN & NORTH

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	L	T
Maximum Queue (ft)	59	11	68	53	37
Average Queue (ft)	25	0	7	22	2
95th Queue (ft)	51	6	38	51	16
Link Distance (ft)	124	93	93	44	44
Upstream Blk Time (%)			0	1	0
Queuing Penalty (veh)			0	2	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: COMMERCE LN & NORTH PROJECT ACCESS

Movement	EB	NB	SB	SB
Directions Served	R	T	T	TR
Maximum Queue (ft)	31	70	28	17
Average Queue (ft)	4	18	1	1
95th Queue (ft)	21	58	11	9
Link Distance (ft)	451	44	67	67
Upstream Blk Time (%)		4	0	0
Queuing Penalty (veh)		7	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: COMMERCE LN & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	37	87	129	92	64	138	84
Average Queue (ft)	9	50	66	49	23	64	36
95th Queue (ft)	29	77	105	78	53	141	61
Link Distance (ft)		3862		308	67	67	943
Upstream Blk Time (%)					0	8	
Queuing Penalty (veh)					0	15	
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)		4	0				
Queuing Penalty (veh)		1	0				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	122	168	123
Average Queue (ft)	77	88	65
95th Queue (ft)	116	153	103
Link Distance (ft)	120	179	622
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	2	2	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	132	160	120	156
Average Queue (ft)	66	80	54	58
95th Queue (ft)	109	142	107	225
Link Distance (ft)	199	187		649
Upstream Blk Time (%)		3		2
Queuing Penalty (veh)		14		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				3
Queuing Penalty (veh)				4

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	T
Maximum Queue (ft)	98
Average Queue (ft)	12
95th Queue (ft)	61
Link Distance (ft)	308
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	WB
Directions Served	TR
Maximum Queue (ft)	115
Average Queue (ft)	26
95th Queue (ft)	204
Link Distance (ft)	563
Upstream Blk Time (%)	4
Queuing Penalty (veh)	21
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	6	25
Average Queue (ft)	0	7
95th Queue (ft)	6	68
Link Distance (ft)	563	199
Upstream Blk Time (%)		2
Queuing Penalty (veh)		14
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB
Directions Served	T
Maximum Queue (ft)	25
Average Queue (ft)	7
95th Queue (ft)	65
Link Distance (ft)	202
Upstream Blk Time (%)	3
Queuing Penalty (veh)	7
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 88

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	0	4	0	42	0	26	46	1
Future Vol, veh/h	1	0	0	0	0	4	0	42	0	26	46	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	1	0	0	0	0	4	0	46	0	28	50	1
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.5	6.7	7.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	98%
Vol Right, %	0%	0%	100%	0%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	1	4	26	47
LT Vol	0	1	0	26	0
Through Vol	42	0	0	0	46
RT Vol	0	0	4	0	1
Lane Flow Rate	46	1	4	28	51
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.052	0.001	0.004	0.05	0.076
Departure Headway (Hd)	4.1	4.471	3.667	6.308	5.368
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	869	805	982	571	671
Service Time	2.144	2.471	1.667	4.014	3.074
HCM Lane V/C Ratio	0.053	0.001	0.004	0.049	0.076
HCM Control Delay	7.4	7.5	6.7	9.3	8.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0	0.2	0.2

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	199	0	3	2	0	34	4	44	0	18	68	86
Future Vol, veh/h	199	0	3	2	0	34	4	44	0	18	68	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	0	-	-	0	-	-
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	100	2	100	2	10	2	100	70	2
Mvmt Flow	216	0	3	2	0	37	4	48	0	20	74	93

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	236	-	121	218	263	48	167	0	0	48	0	0
Stage 1	161	-	-	56	56	-	-	-	-	-	-	-
Stage 2	75	-	-	162	207	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	8.1	6.52	7.2	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	4.4	4.018	4.2	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	718	0	930	571	642	801	1411	-	-	1108	-	-
Stage 1	841	0	-	758	848	-	-	-	-	-	-	-
Stage 2	934	0	-	655	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	674	-	930	560	629	801	1411	-	-	1108	-	-
Mov Cap-2 Maneuver	674	-	-	560	629	-	-	-	-	-	-	-
Stage 1	838	-	-	756	845	-	-	-	-	-	-	-
Stage 2	888	-	-	641	718	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	9.8	0.6	0.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1411	-	-	674	930	560	801	1108	-	-
HCM Lane V/C Ratio	0.003	-	-	0.321	0.004	0.004	0.046	0.018	-	-
HCM Control Delay (s)	7.6	-	-	12.8	8.9	11.5	9.7	8.3	0	-
HCM Lane LOS	A	-	-	B	A	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.4	0	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	38	330	2	98	174
Future Vol, veh/h	2	38	330	2	98	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	40	2	2	40
Mvmt Flow	2	41	359	2	107	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	763	181	0	0	361	0
Stage 1	360	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	356	831	-	-	1196	-
Stage 1	677	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	324	831	-	-	1196	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	771	1196	-
HCM Lane V/C Ratio	-	-	0.056	0.089	-
HCM Control Delay (s)	-	-	9.9	8.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	368	277	120
Future Vol, veh/h	0	5	0	368	277	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	400	301	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	216	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	789	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	789	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	789	-	-
HCM Lane V/C Ratio	-	0.007	-	-
HCM Control Delay (s)	-	9.6	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Intersection Delay, s/veh	23.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	171	24	351	252	74	32	9	326	64	10	15
Future Vol, veh/h	13	171	24	351	252	74	32	9	326	64	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	13	2	3	5	2	13	5	2	2
Mvmt Flow	14	186	26	382	274	80	35	10	354	70	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.9	27.7	21	13.7
HCM LOS	C	D	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	78%	0%	100%	0%	100%	0%	72%
Vol Thru, %	22%	0%	0%	88%	0%	77%	11%
Vol Right, %	0%	100%	0%	12%	0%	23%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	326	13	195	351	326	89
LT Vol	32	0	13	0	351	0	64
Through Vol	9	0	0	171	0	252	10
RT Vol	0	326	0	24	0	74	15
Lane Flow Rate	45	354	14	212	382	354	97
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.099	0.669	0.032	0.443	0.796	0.655	0.223
Departure Headway (Hd)	7.959	6.792	8.128	7.524	7.515	6.65	8.31
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	451	532	440	479	481	542	431
Service Time	5.696	4.529	5.879	5.275	5.259	4.394	6.365
HCM Lane V/C Ratio	0.1	0.665	0.032	0.443	0.794	0.653	0.225
HCM Control Delay	11.6	22.2	11.1	16.2	33.7	21.2	13.7
HCM Lane LOS	B	C	B	C	D	C	B
HCM 95th-tile Q	0.3	4.9	0.1	2.2	7.3	4.7	0.8

Intersection	
Intersection Delay, s/veh	30
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	417	529	0	106	158
Future Vol, veh/h	0	417	529	0	106	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	7	6	5	5	14
Mvmt Flow	0	453	575	0	115	172
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	24.2	41.6	16
HCM LOS	C	E	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	40%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	417	529	264
LT Vol	0	0	106
Through Vol	417	529	0
RT Vol	0	0	158
Lane Flow Rate	453	575	287
Geometry Grp	1	1	1
Degree of Util (X)	0.742	0.912	0.508
Departure Headway (Hd)	5.895	5.707	6.376
Convergence, Y/N	Yes	Yes	Yes
Cap	607	633	560
Service Time	3.98	3.784	4.469
HCM Lane V/C Ratio	0.746	0.908	0.512
HCM Control Delay	24.2	41.6	16
HCM Lane LOS	C	E	C
HCM 95th-tile Q	6.5	11.6	2.9

Intersection	
Intersection Delay, s/veh	20
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	406	0	0	448	142	135
Future Vol, veh/h	406	0	0	448	142	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	2	2	2	18	2
Mvmt Flow	441	0	0	487	154	147
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	20.7	24	12.7
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	142	135	406	448
LT Vol	142	0	0	0
Through Vol	0	0	406	448
RT Vol	0	135	0	0
Lane Flow Rate	154	147	441	487
Geometry Grp	7	7	2	2
Degree of Util (X)	0.332	0.254	0.695	0.756
Departure Headway (Hd)	7.746	6.241	5.672	5.591
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	463	572	635	643
Service Time	5.512	4.007	3.73	3.648
HCM Lane V/C Ratio	0.333	0.257	0.694	0.757
HCM Control Delay	14.3	11.1	20.7	24
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.4	1	5.6	6.9

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱		↰	
Traffic Vol, veh/h	0	523	529	65	0	0
Future Vol, veh/h	0	523	529	65	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-5	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	6	5	2	2
Mvmt Flow	0	568	575	71	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1143	-
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	568	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	0	221	0
Stage 1	0	-	-	0	563	0
Stage 2	0	-	-	0	567	0
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	221	-
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	567	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	0
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	-

Intersection						
Int Delay, s/veh	0					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	406	116	0	590	0	0
Future Vol, veh/h	406	116	0	590	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	16	2	2	2	2
Mvmt Flow	441	126	0	641	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1082	-
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	641	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	-	0	0	-	241	0
Stage 1	-	0	0	-	648	0
Stage 2	-	0	0	-	525	0
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	241	-
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	525	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	9	4	0	5	6	4	58	8	40	64	15
Future Vol, veh/h	14	9	4	0	5	6	4	58	8	40	64	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	16	10	5	0	6	7	5	66	9	45	73	17
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.7	7.3	7.7	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	52%	0%	100%	0%
Vol Thru, %	83%	33%	45%	0%	81%
Vol Right, %	11%	15%	55%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	27	11	40	79
LT Vol	4	14	0	40	0
Through Vol	58	9	5	0	64
RT Vol	8	4	6	0	15
Lane Flow Rate	80	31	12	45	90
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.094	0.039	0.015	0.081	0.133
Departure Headway (Hd)	4.255	4.522	4.201	6.392	5.333
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	847	796	856	560	671
Service Time	2.255	2.527	2.207	4.138	3.079
HCM Lane V/C Ratio	0.094	0.039	0.014	0.08	0.134
HCM Control Delay	7.7	7.7	7.3	9.7	8.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0	0.3	0.5

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	48	0	63	0	12	80	0
Future Vol, veh/h	0	0	0	3	0	48	0	63	0	12	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	88	92	92	88	92
Heavy Vehicles, %	15	2	2	2	2	90	2	10	2	10	2	2
Mvmt Flow	0	0	0	3	0	52	0	72	0	13	91	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	215	-	91	189	189	72	91	0	0	72	0	0
Stage 1	117	-	-	72	72	-	-	-	-	-	-	-
Stage 2	98	-	-	117	117	-	-	-	-	-	-	-
Critical Hdwy	7.25	-	6.22	7.12	6.52	7.1	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	-	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	-	3.318	3.518	4.018	4.11	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	715	0	967	771	706	792	1504	-	-	1479	-	-
Stage 1	857	0	-	938	835	-	-	-	-	-	-	-
Stage 2	877	0	-	888	799	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	664	-	967	766	700	792	1504	-	-	1479	-	-
Mov Cap-2 Maneuver	664	-	-	766	700	-	-	-	-	-	-	-
Stage 1	857	-	-	938	835	-	-	-	-	-	-	-
Stage 2	819	-	-	880	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.9	0	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	-	-	790	1479	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.07	0.009	-	-
HCM Control Delay (s)	0	-	-	0	0	9.9	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	55	117	6	18	96
Future Vol, veh/h	4	55	117	6	18	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	10
Mvmt Flow	4	60	133	7	20	109

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	286	137	0	0	140	0
Stage 1	137	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	704	911	-	-	1443	-
Stage 1	890	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	694	911	-	-	1443	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	892	1443	-
HCM Lane V/C Ratio	-	-	0.072	0.014	-
HCM Control Delay (s)	-	-	9.3	7.5	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	172	0	56	114
Future Vol, veh/h	0	16	172	0	56	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	0	17	195	0	61	130

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	447	98	0	0	195	0
Stage 1	195	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	554	939	-	-	1377	-
Stage 1	819	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	530	939	-	-	1377	-
Mov Cap-2 Maneuver	530	-	-	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	939	1377	-
HCM Lane V/C Ratio	-	-	-	0.019	0.044	-
HCM Control Delay (s)	-	-	0	8.9	7.7	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.1	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	188	170	0
Future Vol, veh/h	0	0	0	188	170	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	15	10	15
Mvmt Flow	0	0	0	204	185	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	93	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	946	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	946	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	276	12	154	124	46	7	3	178	54	8	9
Future Vol, veh/h	13	276	12	154	124	46	7	3	178	54	8	9
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
Heavy Vehicles, %	8	5	2	35	5	2	2	2	38	6	25	2
Mvmt Flow	15	314	14	175	141	52	8	3	202	61	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.7	12.3	11.7	11.6
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	70%	0%	100%	0%	100%	0%	76%
Vol Thru, %	30%	0%	0%	96%	0%	73%	11%
Vol Right, %	0%	100%	0%	4%	0%	27%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	178	13	288	154	170	71
LT Vol	7	0	13	0	154	0	54
Through Vol	3	0	0	276	0	124	8
RT Vol	0	178	0	12	0	46	9
Lane Flow Rate	11	202	15	327	175	193	81
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.022	0.336	0.027	0.551	0.343	0.313	0.16
Departure Headway (Hd)	7.053	5.986	6.647	6.058	7.057	5.84	7.134
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	599	538	596	509	614	501
Service Time	4.814	3.746	4.398	3.809	4.809	3.591	5.206
HCM Lane V/C Ratio	0.022	0.337	0.028	0.549	0.344	0.314	0.162
HCM Control Delay	10	11.8	9.6	16	13.5	11.3	11.6
HCM Lane LOS	A	B	A	C	B	B	B
HCM 95th-tile Q	0.1	1.5	0.1	3.3	1.5	1.3	0.6

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	379	247	0	89	76
Future Vol, veh/h	0	379	247	0	89	76
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	10	13	10	18	70
Mvmt Flow	0	431	281	0	101	86
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	15.2	12	11.4
HCM LOS	C	B	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	54%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	46%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	379	247	165
LT Vol	0	0	89
Through Vol	379	247	0
RT Vol	0	0	76
Lane Flow Rate	431	281	188
Geometry Grp	1	1	1
Degree of Util (X)	0.594	0.413	0.303
Departure Headway (Hd)	5.066	5.292	5.825
Convergence, Y/N	Yes	Yes	Yes
Cap	715	685	619
Service Time	3.066	3.292	3.839
HCM Lane V/C Ratio	0.603	0.41	0.304
HCM Control Delay	15.2	12	11.4
HCM Lane LOS	C	B	B
HCM 95th-tile Q	4	2	1.3

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	406	0	0	283	53	92
Future Vol, veh/h	406	0	0	283	53	92
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	4	46	15
Mvmt Flow	461	0	0	322	60	105
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	16	12.2	10.5
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	92	406	283
LT Vol	53	0	0	0
Through Vol	0	0	406	283
RT Vol	0	92	0	0
Lane Flow Rate	60	105	461	322
Geometry Grp	7	7	2	2
Degree of Util (X)	0.129	0.173	0.627	0.448
Departure Headway (Hd)	7.721	5.965	4.889	5.016
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	467	605	729	708
Service Time	5.421	3.665	2.977	3.115
HCM Lane V/C Ratio	0.128	0.174	0.632	0.455
HCM Control Delay	11.6	9.9	16	12.2
HCM Lane LOS	B	A	C	B
HCM 95th-tile Q	0.4	0.6	4.5	2.3

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥		↰	↱	
Traffic Vol, veh/h	13	9	4	0	5	4	5	48	8	26	53	15
Future Vol, veh/h	13	9	4	0	5	4	5	48	8	26	53	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	14	10	4	0	5	4	5	52	9	28	58	16
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.5	7.2	7.5	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	8%	50%	0%	100%	0%
Vol Thru, %	79%	35%	56%	0%	78%
Vol Right, %	13%	15%	44%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	26	9	26	68
LT Vol	5	13	0	26	0
Through Vol	48	9	5	0	53
RT Vol	8	4	4	0	15
Lane Flow Rate	66	28	10	28	74
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.076	0.034	0.011	0.05	0.109
Departure Headway (Hd)	4.113	4.389	4.135	6.377	5.296
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	861	821	871	562	677
Service Time	2.189	2.389	2.135	4.109	3.028
HCM Lane V/C Ratio	0.077	0.034	0.011	0.05	0.109
HCM Control Delay	7.5	7.5	7.2	9.4	8.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0	0.2	0.4

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	0	34	5	226	0	18	245	0
Future Vol, veh/h	0	0	0	2	0	34	5	226	0	18	245	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	0	-	-	0	-	-
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	100	2	100	2	10	2	100	70	2
Mvmt Flow	0	0	0	2	0	37	5	246	0	20	266	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	581	-	266	562	562	246	266	0	0	246	0	0
Stage 1	306	-	-	256	256	-	-	-	-	-	-	-
Stage 2	275	-	-	306	306	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	8.1	6.52	7.2	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	4.4	4.018	4.2	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	425	0	773	319	436	603	1298	-	-	909	-	0
Stage 1	704	0	-	575	696	-	-	-	-	-	-	0
Stage 2	731	0	-	536	662	-	-	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	391	-	773	313	425	603	1298	-	-	909	-	-
Mov Cap-2 Maneuver	391	-	-	313	425	-	-	-	-	-	-	-
Stage 1	701	-	-	573	693	-	-	-	-	-	-	-
Stage 2	684	-	-	524	647	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.7	0.2	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	1298	-	-	-	-	313	603	909	-
HCM Lane V/C Ratio	0.004	-	-	-	-	0.007	0.061	0.022	-
HCM Control Delay (s)	7.8	-	-	0	0	16.6	11.4	9	0
HCM Lane LOS	A	-	-	A	A	C	B	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0.2	0.1	-

Intersection						
Int Delay, s/veh	1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	86	226	7	30	245
Future Vol, veh/h	2	86	226	7	30	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	25
Heavy Vehicles, %	2	2	66	2	2	63
Mvmt Flow	2	93	246	8	33	980

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1296	250	0	0	254	0
Stage 1	250	-	-	-	-	-
Stage 2	1046	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	179	789	-	-	1311	-
Stage 1	792	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	175	789	-	-	1311	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	330	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	731	1311	-
HCM Lane V/C Ratio	-	-	0.131	0.025	-
HCM Control Delay (s)	-	-	10.7	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	38	226	2	98	245
Future Vol, veh/h	2	38	226	2	98	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	40	2	2	40
Mvmt Flow	2	41	246	2	107	266

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	727	247	0	0	248	0
Stage 1	247	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	391	792	-	-	1318	-
Stage 1	794	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	359	792	-	-	1318	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	747	1318	-
HCM Lane V/C Ratio	-	-	0.058	0.081	-
HCM Control Delay (s)	-	-	10.1	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	226	245	0
Future Vol, veh/h	0	0	0	226	245	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	246	266	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	133	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	892	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	892	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	0	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	182	12	223	243	76	21	9	196	64	10	15
Future Vol, veh/h	13	182	12	223	243	76	21	9	196	64	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	6	16	2	3	7	2	16	5	2	2
Mvmt Flow	14	198	13	242	264	83	23	10	213	70	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	13	15.6	12.3	12.1
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	70%	0%	100%	0%	100%	0%	72%
Vol Thru, %	30%	0%	0%	94%	0%	76%	11%
Vol Right, %	0%	100%	0%	6%	0%	24%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	196	13	194	223	319	89
LT Vol	21	0	13	0	223	0	64
Through Vol	9	0	0	182	0	243	10
RT Vol	0	196	0	12	0	76	15
Lane Flow Rate	33	213	14	211	242	347	97
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.067	0.367	0.028	0.38	0.456	0.564	0.195
Departure Headway (Hd)	7.36	6.205	7.048	6.494	6.774	5.856	7.273
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	577	506	552	531	614	490
Service Time	5.131	3.976	4.82	4.266	4.53	3.612	5.356
HCM Lane V/C Ratio	0.068	0.369	0.028	0.382	0.456	0.565	0.198
HCM Control Delay	10.7	12.6	10	13.2	15.1	16	12.1
HCM Lane LOS	B	B	A	B	C	C	B
HCM 95th-tile Q	0.2	1.7	0.1	1.8	2.4	3.5	0.7

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	318	417	0	106	122
Future Vol, veh/h	0	318	417	0	106	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	8	8	10	5	16
Mvmt Flow	0	346	453	0	115	133
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	14.4	18.5	12.7
HCM LOS	B	C	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	46%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	54%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	318	417	228
LT Vol	0	0	106
Through Vol	318	417	0
RT Vol	0	0	122
Lane Flow Rate	346	453	248
Geometry Grp	1	1	1
Degree of Util (X)	0.524	0.669	0.399
Departure Headway (Hd)	5.454	5.312	5.796
Convergence, Y/N	Yes	Yes	Yes
Cap	660	680	620
Service Time	3.496	3.35	3.845
HCM Lane V/C Ratio	0.524	0.666	0.4
HCM Control Delay	14.4	18.5	12.7
HCM Lane LOS	B	C	B
HCM 95th-tile Q	3.1	5.1	1.9

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	359	0	0	382	96	135
Future Vol, veh/h	359	0	0	382	96	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	2	3	20	2
Mvmt Flow	390	0	0	415	104	147
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	15.5	16.3	11.2
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	135	359	382
LT Vol	96	0	0	0
Through Vol	0	0	359	382
RT Vol	0	135	0	0
Lane Flow Rate	104	147	390	415
Geometry Grp	7	7	2	2
Degree of Util (X)	0.215	0.239	0.578	0.61
Departure Headway (Hd)	7.403	5.87	5.337	5.289
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	485	610	675	681
Service Time	5.146	3.612	3.372	3.323
HCM Lane V/C Ratio	0.214	0.241	0.578	0.609
HCM Control Delay	12.2	10.5	15.5	16.3
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	0.8	0.9	3.7	4.2

1: COUNTY ROAD 13 & COUNTY ROAD HH Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.5	0.4
Total Del/Veh (s)	4.9	3.8	5.4	1.9	2.8

2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.2	0.0	0.1
Total Del/Veh (s)	12.4	6.9	1.6	0.5	4.4

3: COUNTY ROAD HH & CENTRAL FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	8.3	1.9	0.6	2.0

4: COUNTY ROAD HH & NORTH FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.0
Total Del/Veh (s)	8.9	2.4	1.1	1.9

5: COUNTY ROAD HH & NORTH PROJECT ACCESS Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	2.3	5.5	0.9	3.1

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1	0.1
Total Del/Veh (s)	13.3	7.6	2.7	6.4	7.5

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	8.8	8.6	6.3	8.2

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.1	0.4
Total Del/Veh (s)	9.7	8.4	5.5	8.4

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	11.9	2.4	7.8

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.0	0.8	2.0

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.1	2.7	1.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	2.8	0.9	1.9

Total Zone Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	103.9

Intersection: 1: COUNTY ROAD 13 & COUNTY ROAD HH

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	33	64	62	101	82
Average Queue (ft)	18	11	29	41	34
95th Queue (ft)	42	43	52	87	71
Link Distance (ft)	336	274	329		243
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 2: COUNTY ROAD HH & SOUTH PROJECT ACCESS/SOUTH FLYING J

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	R	L	TR	L	TR
Maximum Queue (ft)	182	10	26	116	17	30	29	20
Average Queue (ft)	63	1	3	52	1	2	1	1
95th Queue (ft)	139	6	16	99	10	20	11	9
Link Distance (ft)	713	713	170	170	243	243	106	106
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: COUNTY ROAD HH & CENTRAL FLYING J

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	86	121	39
Average Queue (ft)	34	14	8
95th Queue (ft)	65	71	32
Link Distance (ft)	121	106	
Upstream Blk Time (%)	0	2	
Queuing Penalty (veh)	0	8	
Storage Bay Dist (ft)			50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 4: COUNTY ROAD HH & NORTH FLYING J

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	TR	L	T
Maximum Queue (ft)	36	20	102	52	13
Average Queue (ft)	12	1	24	15	0
95th Queue (ft)	36	16	82	44	9
Link Distance (ft)	114	81	81	55	55
Upstream Blk Time (%)		0	4	1	0
Queuing Penalty (veh)		0	9	1	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: COUNTY ROAD HH & NORTH PROJECT ACCESS

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	20	27	144	13	52
Average Queue (ft)	3	2	54	0	6
95th Queue (ft)	15	13	130	7	29
Link Distance (ft)	422	55	55	30	30
Upstream Blk Time (%)			14	0	0
Queuing Penalty (veh)			26	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	59	141	170	141	38	66	67
Average Queue (ft)	11	67	78	42	17	4	30
95th Queue (ft)	38	116	135	97	42	35	57
Link Distance (ft)		3858		295	30	30	1168
Upstream Blk Time (%)				0	3	0	
Queuing Penalty (veh)				0	5	0	
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	12	1				
Queuing Penalty (veh)	0	2	1				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	129	117	128
Average Queue (ft)	86	61	65
95th Queue (ft)	127	99	104
Link Distance (ft)	121	186	622
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	5		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	150	122	95	80
Average Queue (ft)	72	63	43	42
95th Queue (ft)	118	96	75	71
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	T	T
Maximum Queue (ft)	125	13
Average Queue (ft)	19	0
95th Queue (ft)	76	9
Link Distance (ft)	295	121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	TR
Maximum Queue (ft)	22
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	574
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 58

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣		↰	↱	
Traffic Vol, veh/h	14	9	4	0	5	6	4	42	8	40	30	15
Future Vol, veh/h	14	9	4	0	5	6	4	42	8	40	30	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	16	10	5	0	6	7	5	48	9	45	34	17
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.5	7.1	7.5	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	7%	52%	0%	100%	0%
Vol Thru, %	78%	33%	45%	0%	67%
Vol Right, %	15%	15%	55%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	27	11	40	45
LT Vol	4	14	0	40	0
Through Vol	42	9	5	0	30
RT Vol	8	4	6	0	15
Lane Flow Rate	61	31	12	45	51
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.07	0.037	0.014	0.081	0.074
Departure Headway (Hd)	4.104	4.379	4.057	6.383	5.223
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	861	823	887	562	685
Service Time	2.186	2.379	2.058	4.118	2.958
HCM Lane V/C Ratio	0.071	0.038	0.014	0.08	0.074
HCM Control Delay	7.5	7.5	7.1	9.7	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0	0.3	0.2

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	0	3	3	0	48	4	188	0	12	171	80
Future Vol, veh/h	186	0	3	3	0	48	4	188	0	12	171	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	88	92	92	88	92
Heavy Vehicles, %	15	2	2	2	2	90	2	10	2	10	2	2
Mvmt Flow	202	0	3	3	0	52	4	214	0	13	194	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	512	-	238	487	-	214	281	0	0	214	0	0
Stage 1	264	-	-	222	-	-	-	-	-	-	-	-
Stage 2	248	-	-	265	-	-	-	-	-	-	-	-
Critical Hdwy	7.25	-	6.22	7.12	-	7.1	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.25	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	-	3.318	3.518	-	4.11	2.218	-	-	2.29	-	-
Pot Cap-1 Maneuver	452	0	801	491	0	647	1282	-	-	1310	-	-
Stage 1	713	0	-	780	0	-	-	-	-	-	-	-
Stage 2	728	0	-	740	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	411	-	801	484	-	647	1282	-	-	1310	-	-
Mov Cap-2 Maneuver	411	-	-	484	-	-	-	-	-	-	-	-
Stage 1	711	-	-	778	-	-	-	-	-	-	-	-
Stage 2	667	-	-	730	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.7	11.2	0.2	0.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	411	801	484	647	1310	-	-
HCM Lane V/C Ratio	0.003	-	-	0.492	0.004	0.007	0.081	0.01	-	-
HCM Control Delay (s)	7.8	-	-	21.9	9.5	12.5	11.1	7.8	-	-
HCM Lane LOS	A	-	-	C	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.6	0	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	55	359	22	22	231
Future Vol, veh/h	24	55	359	22	22	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	10
Mvmt Flow	26	60	408	24	24	263

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	731	420	0	0	432	0
Stage 1	420	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	389	633	-	-	1128	-
Stage 1	663	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	381	633	-	-	1128	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	727	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	527	1128	-
HCM Lane V/C Ratio	-	-	0.163	0.021	-
HCM Control Delay (s)	-	-	13.2	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	359	0	56	292
Future Vol, veh/h	0	16	359	0	56	292
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	88	92	92	88
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	0	17	408	0	61	332

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	862	204	0	0	408	0
Stage 1	408	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	309	803	-	-	1149	-
Stage 1	641	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	293	803	-	-	1149	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	9.6		0		1.3	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	803	1149	-
HCM Lane V/C Ratio	-	-	-	0.022	0.053	-
HCM Control Delay (s)	-	-	0	9.6	8.3	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	375	287	113
Future Vol, veh/h	0	5	0	375	287	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	15	10	15
Mvmt Flow	0	5	0	408	312	123

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	218	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	786	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	786	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	786	-	-
HCM Lane V/C Ratio	-	0.007	-	-
HCM Control Delay (s)	-	9.6	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Intersection Delay, s/veh	24.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	262	26	314	110	46	21	3	335	54	8	9
Future Vol, veh/h	13	262	26	314	110	46	21	3	335	54	8	9
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
Heavy Vehicles, %	8	5	5	17	6	2	6	2	19	6	25	2
Mvmt Flow	15	298	30	357	125	52	24	3	381	61	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	23.5	26.7	24.3	14
HCM LOS	C	D	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	88%	0%	100%	0%	100%	0%	76%
Vol Thru, %	12%	0%	0%	91%	0%	71%	11%
Vol Right, %	0%	100%	0%	9%	0%	29%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	335	13	288	314	156	71
LT Vol	21	0	13	0	314	0	54
Through Vol	3	0	0	262	0	110	8
RT Vol	0	335	0	26	0	46	9
Lane Flow Rate	27	381	15	327	357	177	81
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.061	0.719	0.033	0.672	0.779	0.342	0.196
Departure Headway (Hd)	8.039	6.804	8.02	7.388	7.86	6.943	8.734
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	445	529	445	488	460	516	409
Service Time	5.797	4.561	5.787	5.154	5.626	4.708	6.827
HCM Lane V/C Ratio	0.061	0.72	0.034	0.67	0.776	0.343	0.198
HCM Control Delay	11.3	25.2	11.1	24.1	33.4	13.3	14
HCM Lane LOS	B	D	B	C	D	B	B
HCM 95th-tile Q	0.2	5.8	0.1	4.9	6.8	1.5	0.7

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	486	355	0	89	127
Future Vol, veh/h	0	486	355	0	89	127
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	11	7	10	15	29
Mvmt Flow	0	552	403	0	101	144
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	32	18.2	14.2
HCM LOS	D	C	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	41%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	59%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	486	355	216
LT Vol	0	0	89
Through Vol	486	355	0
RT Vol	0	0	127
Lane Flow Rate	552	403	245
Geometry Grp	1	1	1
Degree of Util (X)	0.849	0.636	0.433
Departure Headway (Hd)	5.536	5.677	6.347
Convergence, Y/N	Yes	Yes	Yes
Cap	652	633	565
Service Time	3.591	3.739	4.415
HCM Lane V/C Ratio	0.847	0.637	0.434
HCM Control Delay	32	18.2	14.2
HCM Lane LOS	D	C	B
HCM 95th-tile Q	9.5	4.5	2.2

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	462	0	0	340	104	92
Future Vol, veh/h	462	0	0	340	104	92
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	5	22	15
Mvmt Flow	525	0	0	386	118	105
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	24.4	16.1	11.9
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	92	462	340
LT Vol	104	0	0	0
Through Vol	0	0	462	340
RT Vol	0	92	0	0
Lane Flow Rate	118	105	525	386
Geometry Grp	7	7	2	2
Degree of Util (X)	0.253	0.185	0.776	0.589
Departure Headway (Hd)	7.707	6.361	5.322	5.489
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	466	564	677	657
Service Time	5.459	4.112	3.36	3.532
HCM Lane V/C Ratio	0.253	0.186	0.775	0.588
HCM Control Delay	13.1	10.6	24.4	16.1
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1	0.7	7.4	3.9

Intersection	
Intersection Delay, s/veh	35.8
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	434	555	0	106	175
Future Vol, veh/h	0	434	555	0	106	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	7	6	5	5	14
Mvmt Flow	0	472	603	0	115	190
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	27.8	53.4	13.5
HCM LOS	D	F	B

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	434	555	106	175
LT Vol	0	0	106	0
Through Vol	434	555	0	0
RT Vol	0	0	0	175
Lane Flow Rate	472	603	115	190
Geometry Grp	2	2	7	7
Degree of Util (X)	0.786	0.971	0.254	0.362
Departure Headway (Hd)	6	5.792	7.933	6.858
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	599	621	451	521
Service Time	4.082	3.866	5.727	4.652
HCM Lane V/C Ratio	0.788	0.971	0.255	0.365
HCM Control Delay	27.8	53.4	13.4	13.5
HCM Lane LOS	D	F	B	B
HCM 95th-tile Q	7.5	13.9	1	1.6

1: COMMERCE LN & COUNTY ROAD 13 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0
Total Del/Veh (s)	4.6	3.1	5.7	2.6	3.3

2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.2
Total Del/Veh (s)	13.3	5.1	1.5	1.3	3.7

3: COMMERCE LN & CENTRAL FLYING J Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	7.2	0.3	5.5	3.0
Total Del/Veh (s)	16.2	1.2	1.2	2.5

4: COMMERCE LN & NORTH Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	7.2	0.9	1.1	1.2

5: COMMERCE LN & NORTH PROJECT ACCESS Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.5	0.1	0.3
Total Del/Veh (s)	2.8	1.5	0.9	1.2

6: COMMERCE LN & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.9	0.1	0.4
Total Del/Veh (s)	9.8	7.9	3.7	6.1	6.7

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1
Total Del/Veh (s)	8.8	14.0	7.8	10.8

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	10.8	2.7
Total Del/Veh (s)	10.0	13.2	17.1	13.0

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	9.1	2.7	5.6

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	2.2	1.2
Total Del/Veh (s)	2.8	11.5	7.5

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	2.0	1.1
Total Del/Veh (s)	0.9	5.1	3.1

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	6.1	3.1
Total Del/Veh (s)	2.6	3.1	2.9

Total Zone Performance

Denied Del/Veh (s)	5.0
Total Del/Veh (s)	48.9

Intersection: 1: COMMERCE LN & COUNTY ROAD 13

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	32	48	63	89	117
Average Queue (ft)	18	8	30	33	49
95th Queue (ft)	43	33	54	78	88
Link Distance (ft)	626	307	366		115
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 2: COMMERCE LN & SOUTH PROJECT ACCESS/FLYING J DWY

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	TR	L	TR	L	LTR
Maximum Queue (ft)	145	30	58	91	16	46	59	75
Average Queue (ft)	62	3	5	39	1	7	7	5
95th Queue (ft)	111	19	29	88	9	31	36	36
Link Distance (ft)	618	618	400	400	115	115	220	220
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: COMMERCE LN & CENTRAL FLYING J

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	117	66	46	93
Average Queue (ft)	47	5	10	8
95th Queue (ft)	95	43	36	48
Link Distance (ft)	121	220		93
Upstream Blk Time (%)	6	0		0
Queuing Penalty (veh)	0	0		0
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			0	0
Queuing Penalty (veh)			1	0

Intersection: 4: COMMERCE LN & NORTH

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	L	T
Maximum Queue (ft)	67	4	84	61	58
Average Queue (ft)	25	0	11	28	6
95th Queue (ft)	53	4	51	59	31
Link Distance (ft)	124	93	93	44	44
Upstream Blk Time (%)			1	2	0
Queuing Penalty (veh)			2	3	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: COMMERCE LN & NORTH PROJECT ACCESS

Movement	EB	NB	SB	SB
Directions Served	R	T	T	TR
Maximum Queue (ft)	30	72	33	37
Average Queue (ft)	6	23	2	3
95th Queue (ft)	24	66	15	23
Link Distance (ft)	451	44	67	67
Upstream Blk Time (%)		5		0
Queuing Penalty (veh)		12		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: COMMERCE LN & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	35	94	149	112	67	149	77
Average Queue (ft)	8	50	76	52	26	72	35
95th Queue (ft)	29	80	123	87	56	153	60
Link Distance (ft)		3862		308	67	67	943
Upstream Blk Time (%)					0	11	
Queuing Penalty (veh)					0	24	
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	4	0				
Queuing Penalty (veh)	0	1	1				

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	122	183	146
Average Queue (ft)	79	103	74
95th Queue (ft)	119	182	119
Link Distance (ft)	120	179	622
Upstream Blk Time (%)	1	1	
Queuing Penalty (veh)	3	8	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	142	168	117	156
Average Queue (ft)	68	86	59	62
95th Queue (ft)	116	148	120	238
Link Distance (ft)	199	187		649
Upstream Blk Time (%)	0	4		3
Queuing Penalty (veh)	0	20		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			4	
Queuing Penalty (veh)			5	

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	T
Maximum Queue (ft)	120
Average Queue (ft)	15
95th Queue (ft)	82
Link Distance (ft)	308
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	WB
Directions Served	TR
Maximum Queue (ft)	217
Average Queue (ft)	53
95th Queue (ft)	277
Link Distance (ft)	563
Upstream Blk Time (%)	5
Queuing Penalty (veh)	28
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	8	29
Average Queue (ft)	0	9
95th Queue (ft)	7	78
Link Distance (ft)	563	199
Upstream Blk Time (%)		4
Queuing Penalty (veh)		26
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB
Directions Served	T
Maximum Queue (ft)	62
Average Queue (ft)	10
95th Queue (ft)	78
Link Distance (ft)	202
Upstream Blk Time (%)	4
Queuing Penalty (veh)	10
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 144

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	9	4	0	5	4	5	52	8	26	57	15
Future Vol, veh/h	13	9	4	0	5	4	5	52	8	26	57	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	50	2	2	2	75	50	2
Mvmt Flow	14	10	4	0	5	4	5	57	9	28	62	16
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.6	7.2	7.6	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	8%	50%	0%	100%	0%
Vol Thru, %	80%	35%	56%	0%	79%
Vol Right, %	12%	15%	44%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	26	9	26	72
LT Vol	5	13	0	26	0
Through Vol	52	9	5	0	57
RT Vol	8	4	4	0	15
Lane Flow Rate	71	28	10	28	78
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.081	0.035	0.011	0.05	0.115
Departure Headway (Hd)	4.12	4.409	4.155	6.379	5.307
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	858	817	866	562	675
Service Time	2.2	2.409	2.157	4.114	3.042
HCM Lane V/C Ratio	0.083	0.034	0.012	0.05	0.116
HCM Control Delay	7.6	7.6	7.2	9.5	8.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0	0.2	0.4

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	199	0	3	2	0	34	4	226	0	18	246	86
Future Vol, veh/h	199	0	3	2	0	34	4	226	0	18	246	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	0	-	-	0	-	-
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	100	2	100	2	10	2	100	70	2
Mvmt Flow	216	0	3	2	0	37	4	246	0	20	267	93

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	627	-	314	609	654	246	360	0	0	246	0	0
Stage 1	354	-	-	254	254	-	-	-	-	-	-	-
Stage 2	273	-	-	355	400	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	8.1	6.52	7.2	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	7.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	4.4	4.018	4.2	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	396	0	726	295	386	603	1199	-	-	909	-	-
Stage 1	663	0	-	577	697	-	-	-	-	-	-	-
Stage 2	733	0	-	501	602	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	365	-	726	288	376	603	1199	-	-	909	-	-
Mov Cap-2 Maneuver	365	-	-	288	376	-	-	-	-	-	-	-
Stage 1	661	-	-	575	695	-	-	-	-	-	-	-
Stage 2	686	-	-	488	589	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.9	11.7	0.1	0.5
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1199	-	-	365	726	288	603	909	-	-
HCM Lane V/C Ratio	0.004	-	-	0.593	0.004	0.008	0.061	0.022	-	-
HCM Control Delay (s)	8	-	-	28.2	10	17.6	11.4	9	0	-
HCM Lane LOS	A	-	-	D	B	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	3.6	0	0	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	86	408	24	34	311
Future Vol, veh/h	23	86	408	24	34	311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	25
Heavy Vehicles, %	2	2	66	2	2	63
Mvmt Flow	25	93	443	26	37	1244

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1774	456	0	0	469	0
Stage 1	456	-	-	-	-	-
Stage 2	1318	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	91	604	-	-	1093	-
Stage 1	638	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	88	604	-	-	1093	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	242	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.4	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	270	1093	-
HCM Lane V/C Ratio	-	-	0.439	0.034	-
HCM Control Delay (s)	-	-	28.4	8.4	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	38	408	2	98	315
Future Vol, veh/h	2	38	408	2	98	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	40	2	2	40
Mvmt Flow	2	41	443	2	107	342

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1000	223	0	0	445	0
Stage 1	444	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	254	781	-	-	1113	-
Stage 1	614	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	230	781	-	-	1113	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	697	1113	-
HCM Lane V/C Ratio	-	-	0.062	0.096	-
HCM Control Delay (s)	-	-	10.5	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	446	408	120
Future Vol, veh/h	0	5	0	446	408	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	485	443	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	287	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	710	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	710	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	710	-	-
HCM Lane V/C Ratio	-	0.008	-	-
HCM Control Delay (s)	-	10.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Intersection Delay, s/veh	30.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	171	27	393	252	76	35	9	364	64	10	15
Future Vol, veh/h	13	171	27	393	252	76	35	9	364	64	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	13	2	3	5	2	13	5	2	2
Mvmt Flow	14	186	29	427	274	83	38	10	396	70	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.9	39.1	27.2	14.3
HCM LOS	C	E	D	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	80%	0%	100%	0%	100%	0%	72%
Vol Thru, %	20%	0%	0%	86%	0%	77%	11%
Vol Right, %	0%	100%	0%	14%	0%	23%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	364	13	198	393	328	89
LT Vol	35	0	13	0	393	0	64
Through Vol	9	0	0	171	0	252	10
RT Vol	0	364	0	27	0	76	15
Lane Flow Rate	48	396	14	215	427	357	97
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.108	0.765	0.033	0.468	0.921	0.682	0.232
Departure Headway (Hd)	8.136	6.96	8.441	7.826	7.758	6.888	8.634
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	441	518	424	461	466	524	415
Service Time	5.878	4.702	6.199	5.583	5.51	4.639	6.699
HCM Lane V/C Ratio	0.109	0.764	0.033	0.466	0.916	0.681	0.234
HCM Control Delay	11.9	29	11.5	17.3	52.3	23.2	14.3
HCM Lane LOS	B	D	B	C	F	C	B
HCM 95th-tile Q	0.4	6.7	0.1	2.4	10.5	5.1	0.9

Intersection	
Intersection Delay, s/veh	40.9
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	434	555	0	106	175
Future Vol, veh/h	0	434	555	0	106	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	7	6	5	5	14
Mvmt Flow	0	472	603	0	115	190
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	30.1	61.1	17.8
HCM LOS	D	F	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	38%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	434	555	281
LT Vol	0	0	106
Through Vol	434	555	0
RT Vol	0	0	175
Lane Flow Rate	472	603	305
Geometry Grp	1	1	1
Degree of Util (X)	0.807	1.001	0.561
Departure Headway (Hd)	6.156	5.976	6.611
Convergence, Y/N	Yes	Yes	Yes
Cap	590	609	544
Service Time	4.201	3.976	4.66
HCM Lane V/C Ratio	0.8	0.99	0.561
HCM Control Delay	30.1	61.1	17.8
HCM Lane LOS	D	F	C
HCM 95th-tile Q	8	15.1	3.4

Intersection	
Intersection Delay, s/veh	22.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	423	0	0	467	149	135
Future Vol, veh/h	423	0	0	467	149	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	2	2	2	18	2
Mvmt Flow	460	0	0	508	162	147
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	23.2	27.7	13.2
HCM LOS	C	D	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	135	423	467
LT Vol	149	0	0	0
Through Vol	0	0	423	467
RT Vol	0	135	0	0
Lane Flow Rate	162	147	460	508
Geometry Grp	7	7	2	2
Degree of Util (X)	0.354	0.259	0.735	0.8
Departure Headway (Hd)	7.86	6.354	5.755	5.671
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	457	562	625	635
Service Time	5.636	4.128	3.823	3.736
HCM Lane V/C Ratio	0.354	0.262	0.736	0.8
HCM Control Delay	14.9	11.4	23.2	27.7
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.6	1	6.4	8

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	540	555	65	0	0
Future Vol, veh/h	0	540	555	65	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	5	-5	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	6	5	2	2
Mvmt Flow	0	587	603	71	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1190	-
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	587	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	0	207	0
Stage 1	0	-	-	0	546	0
Stage 2	0	-	-	0	556	0
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	207	-
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	556	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	0
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	423	131	0	616	0	0
Future Vol, veh/h	423	131	0	616	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	16	2	2	2	2
Mvmt Flow	460	142	0	670	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1130	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	670	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	-	0	0	-	225	0
Stage 1	-	0	0	-	636	0
Stage 2	-	0	0	-	509	0
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	225	-
Mov Cap-2 Maneuver	-	-	-	-	225	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	509	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	278	11	160	131	64	7	3	190	63	8	9
Future Volume (veh/h)	13	278	11	160	131	64	7	3	190	63	8	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1826	1870	1381	1826	1870	1870	1870	1337	1811	1530	1870
Adj Flow Rate, veh/h	15	316	12	182	149	73	8	3	0	72	9	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	5	2	35	5	2	2	2	38	6	25	2
Cap, veh/h	24	362	14	215	413	202	597	212		529	65	63
Arrive On Green	0.01	0.21	0.21	0.16	0.36	0.36	0.48	0.48	0.00	0.48	0.48	0.48
Sat Flow, veh/h	1697	1748	66	1316	1157	567	1083	443	1133	936	135	132
Grp Volume(v), veh/h	15	0	328	182	0	222	11	0	0	91	0	0
Grp Sat Flow(s),veh/h/ln	1697	0	1814	1316	0	1724	1525	0	1133	1203	0	0
Q Serve(g_s), s	0.7	0.0	14.0	10.7	0.0	7.6	0.0	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	14.0	10.7	0.0	7.6	0.2	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.33	0.73		1.00	0.79		0.11
Lane Grp Cap(c), veh/h	24	0	376	215	0	615	809	0		657	0	0
V/C Ratio(X)	0.62	0.00	0.87	0.85	0.00	0.36	0.01	0.00		0.14	0.00	0.00
Avail Cap(c_a), veh/h	85	0	476	460	0	970	809	0		657	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	30.7	32.5	0.0	19.0	10.9	0.0	0.0	11.7	0.0	0.0
Incr Delay (d2), s/veh	23.5	0.0	13.6	8.8	0.0	0.4	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	0.4	0.0	7.2	3.8	0.0	2.9	0.1	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	0.0	44.3	41.3	0.0	19.4	10.9	0.0	0.0	12.1	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		343			404			11	A		91	
Approach Delay, s/veh		45.1			29.2			10.9			12.1	
Approach LOS		D			C			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.3	17.1	20.6		42.3	5.1	32.5				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	28.0	21.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		2.2	12.7	16.0		5.3	2.7	9.6				
Green Ext Time (p_c), s		0.0	0.6	0.6		0.2	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			33.6									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	391	323	0	306	80
Future Volume (veh/h)	0	391	323	0	306	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1605	1902	0	1633	863
Adj Flow Rate, veh/h	0	444	367	0	348	91
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	10	13	0	18	70
Cap, veh/h	0	493	584	0	922	433
Arrive On Green	0.00	0.31	0.31	0.00	0.59	0.59
Sat Flow, veh/h	0	1605	1902	0	1555	731
Grp Volume(v), veh/h	0	444	367	0	348	91
Grp Sat Flow(s),veh/h/ln	0	1605	1902	0	1555	731
Q Serve(g_s), s	0.0	21.2	13.3	0.0	9.4	4.6
Cycle Q Clear(g_c), s	0.0	21.2	13.3	0.0	9.4	4.6
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	493	584	0	922	433
V/C Ratio(X)	0.00	0.90	0.63	0.00	0.38	0.21
Avail Cap(c_a), veh/h	0	682	808	0	922	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.5	23.8	0.0	8.6	7.6
Incr Delay (d2), s/veh	0.0	11.8	1.1	0.0	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.2	5.8	0.0	3.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	38.3	24.9	0.0	9.7	8.7
LnGrp LOS	A	D	C	A	A	A
Approach Vol, veh/h		444	367		439	
Approach Delay, s/veh		38.3	24.9		9.5	
Approach LOS		D	C		A	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				28.6		51.4		28.6
Change Period (Y+Rc), s				4.0		4.0		4.0
Max Green Setting (Gmax), s				34.0		38.0		34.0
Max Q Clear Time (g_c+I1), s				23.2		11.4		15.3
Green Ext Time (p_c), s				1.4		2.0		1.4

Intersection Summary		
HCM 6th Ctrl Delay		24.3
HCM 6th LOS		C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	633	0	0	577	57	307
Future Volume (veh/h)	633	0	0	577	57	307
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2007	0	0	1693	1218	1678
Adj Flow Rate, veh/h	719	0	0	656	65	349
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	0	4	46	15
Cap, veh/h	850	0	0	717	553	677
Arrive On Green	0.42	0.00	0.00	0.42	0.48	0.48
Sat Flow, veh/h	2007	0	0	1693	1160	1422
Grp Volume(v), veh/h	719	0	0	656	65	349
Grp Sat Flow(s),veh/h/ln	2007	0	0	1693	1160	1422
Q Serve(g_s), s	25.7	0.0	0.0	29.2	2.5	13.6
Cycle Q Clear(g_c), s	25.7	0.0	0.0	29.2	2.5	13.6
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	850	0	0	717	553	677
V/C Ratio(X)	0.85	0.00	0.00	0.91	0.12	0.52
Avail Cap(c_a), veh/h	1204	0	0	1016	553	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	0.0	21.7	11.6	14.5
Incr Delay (d2), s/veh	4.0	0.0	0.0	9.5	0.4	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	0.0	0.0	12.3	0.7	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.8	0.0	0.0	31.2	12.1	17.3
LnGrp LOS	C	A	A	C	B	B
Approach Vol, veh/h	719			656	414	
Approach Delay, s/veh	24.8			31.2	16.5	
Approach LOS	C			C	B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	42.1	37.9	37.9
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	48.0	48.0
Max Q Clear Time (g_c+I1), s	15.6	27.7	31.2
Green Ext Time (p_c), s	1.3	3.3	2.7

Intersection Summary	
HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	190	12	311	268	129	21	9	258	111	10	15
Future Volume (veh/h)	13	190	12	311	268	129	21	9	258	111	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1559	1870	1856	1811	1870	1559	1826	1870	1870
Adj Flow Rate, veh/h	14	207	13	338	291	140	23	10	0	121	11	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	23	2	3	6	2	23	5	2	2
Cap, veh/h	24	253	16	382	465	223	544	223		606	57	70
Arrive On Green	0.01	0.15	0.15	0.26	0.39	0.39	0.45	0.45	0.00	0.45	0.45	0.45
Sat Flow, veh/h	1781	1741	109	1485	1193	574	1045	500	1321	1173	127	158
Grp Volume(v), veh/h	14	0	220	338	0	431	33	0	0	148	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1851	1485	0	1767	1544	0	1321	1458	0	0
Q Serve(g_s), s	0.6	0.0	9.2	17.5	0.0	15.8	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	9.2	17.5	0.0	15.8	0.8	0.0	0.0	4.8	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.32	0.70		1.00	0.82		0.11
Lane Grp Cap(c), veh/h	24	0	269	382	0	688	767	0		734	0	0
V/C Ratio(X)	0.59	0.00	0.82	0.88	0.00	0.63	0.04	0.00		0.20	0.00	0.00
Avail Cap(c_a), veh/h	89	0	416	575	0	994	767	0		734	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	33.1	28.6	0.0	19.7	12.4	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	20.9	0.0	7.2	10.6	0.0	0.9	0.1	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	0.4	0.0	4.5	7.0	0.0	6.1	0.3	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	40.3	39.2	0.0	20.7	12.5	0.0	0.0	14.1	0.0	0.0
LnGrp LOS	E	A	D	D	A	C	B	A		B	A	A
Approach Vol, veh/h		234			769			33	A		148	
Approach Delay, s/veh		41.5			28.8			12.5			14.1	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		39.8	24.6	15.6		39.8	5.1	35.1				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	31.0	18.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		2.8	19.5	11.2		6.8	2.6	17.8				
Green Ext Time (p_c), s		0.1	1.1	0.4		0.4	0.0	1.9				

Intersection Summary			
HCM 6th Ctrl Delay			29.0
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	415	545	0	367	164
Future Volume (veh/h)	0	415	545	0	367	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1634	1992	0	1826	1604
Adj Flow Rate, veh/h	0	451	592	0	399	178
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	8	7	0	5	20
Cap, veh/h	0	541	660	0	989	773
Arrive On Green	0.00	0.33	0.33	0.00	0.57	0.57
Sat Flow, veh/h	0	1634	1992	0	1739	1359
Grp Volume(v), veh/h	0	451	592	0	399	178
Grp Sat Flow(s),veh/h/ln	0	1634	1992	0	1739	1359
Q Serve(g_s), s	0.0	20.4	22.6	0.0	10.3	5.2
Cycle Q Clear(g_c), s	0.0	20.4	22.6	0.0	10.3	5.2
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	541	660	0	989	773
V/C Ratio(X)	0.00	0.83	0.90	0.00	0.40	0.23
Avail Cap(c_a), veh/h	0	695	846	0	989	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.7	25.5	0.0	9.7	8.6
Incr Delay (d2), s/veh	0.0	6.9	10.3	0.0	1.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.4	11.8	0.0	3.8	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	31.6	35.8	0.0	10.9	9.3
LnGrp LOS	A	C	D	A	B	A
Approach Vol, veh/h		451	592		577	
Approach Delay, s/veh		31.6	35.8		10.4	
Approach LOS		C	D		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	30.5	49.5	30.5
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	34.0	38.0	34.0
Max Q Clear Time (g_c+I1), s	22.4	12.3	24.6
Green Ext Time (p_c), s	1.5	2.6	1.9

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	679	0	0	713	157	404
Future Volume (veh/h)	679	0	0	713	157	404
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2052	0	0	1723	1500	1870
Adj Flow Rate, veh/h	738	0	0	775	171	439
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	0	2	27	2
Cap, veh/h	992	0	0	833	595	660
Arrive On Green	0.48	0.00	0.00	0.48	0.42	0.42
Sat Flow, veh/h	2052	0	0	1723	1428	1585
Grp Volume(v), veh/h	738	0	0	775	171	439
Grp Sat Flow(s),veh/h/ln	2052	0	0	1723	1428	1585
Q Serve(g_s), s	23.2	0.0	0.0	33.8	6.3	17.9
Cycle Q Clear(g_c), s	23.2	0.0	0.0	33.8	6.3	17.9
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	992	0	0	833	595	660
V/C Ratio(X)	0.74	0.00	0.00	0.93	0.29	0.67
Avail Cap(c_a), veh/h	1205	0	0	1012	595	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	19.4	15.5	18.8
Incr Delay (d2), s/veh	2.0	0.0	0.0	12.9	1.2	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	0.0	0.0	14.8	2.2	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	0.0	0.0	32.3	16.7	24.1
LnGrp LOS	B	A	A	C	B	C
Approach Vol, veh/h	738			775	610	
Approach Delay, s/veh	18.7			32.3	22.0	
Approach LOS	B			C	C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	37.3	42.7	42.7
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	25.0	47.0	47.0
Max Q Clear Time (g_c+I1), s	19.9	25.2	35.8
Green Ext Time (p_c), s	1.4	3.5	2.9

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	165.0	0.1	871.4	87.3	333.6
Total Del/Veh (s)	985.0	15.7	0.6	961.9	364.2

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	790.2	381.8
Total Del/Veh (s)	68.0	13.4	300.5	115.2

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	444.6	168.1
Total Del/Veh (s)	9.3	38.5	105.5	51.4

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	64.5	0.1	27.9
Total Del/Veh (s)	146.4	2.5	63.8

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	28.0	25.2	26.3
Total Del/Veh (s)	55.5	58.0	57.1

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	75.4	23.7	43.5
Total Del/Veh (s)	178.6	22.2	81.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	507.6	335.4
Total Del/Veh (s)	1.6	10.7	6.8

Total Zone Performance

Denied Del/Veh (s)	540.3
Total Del/Veh (s)	1463.6

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	42	2878	178	280	25	866
Average Queue (ft)	6	1549	109	65	4	432
95th Queue (ft)	34	4085	193	226	20	1174
Link Distance (ft)		3858		292		1168
Upstream Blk Time (%)		20		1	3	16
Queuing Penalty (veh)		0		6	0	0
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	1	76	6	1		
Queuing Penalty (veh)	3	10	11	2		

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	123	170	638	395
Average Queue (ft)	111	96	419	278
95th Queue (ft)	123	220	835	754
Link Distance (ft)	109	186	621	621
Upstream Blk Time (%)	75	2	57	41
Queuing Penalty (veh)	371	8	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	154	202	177	390
Average Queue (ft)	51	181	101	249
95th Queue (ft)	172	223	229	683
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	1	41		29
Queuing Penalty (veh)	5	257		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			31	0
Queuing Penalty (veh)			94	1

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB
Directions Served	T	R	T
Maximum Queue (ft)	303	223	81
Average Queue (ft)	235	117	8
95th Queue (ft)	382	359	50
Link Distance (ft)	292	292	109
Upstream Blk Time (%)	59	34	0
Queuing Penalty (veh)	198	112	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	EB	WB
Directions Served	T	TR
Maximum Queue (ft)	188	405
Average Queue (ft)	119	219
95th Queue (ft)	266	651
Link Distance (ft)	186	574
Upstream Blk Time (%)	63	33
Queuing Penalty (veh)	500	245
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	581	89
Average Queue (ft)	380	69
95th Queue (ft)	813	230
Link Distance (ft)	574	206
Upstream Blk Time (%)	63	33
Queuing Penalty (veh)	503	243
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB
Directions Served	T
Maximum Queue (ft)	137
Average Queue (ft)	75
95th Queue (ft)	148
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 2568

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	264	25	320	117	64	21	3	347	63	8	9
Future Volume (veh/h)	13	264	25	320	117	64	21	3	347	63	8	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1826	1826	1648	1811	1870	1811	1870	1618	1811	1530	1870
Adj Flow Rate, veh/h	15	300	28	364	133	73	24	3	0	72	9	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	5	5	17	6	2	6	2	19	6	25	2
Cap, veh/h	24	343	32	409	500	274	581	68		436	53	51
Arrive On Green	0.01	0.21	0.21	0.26	0.45	0.45	0.38	0.38	0.00	0.38	0.38	0.38
Sat Flow, veh/h	1697	1645	154	1570	1099	603	1302	178	1372	934	140	133
Grp Volume(v), veh/h	15	0	328	364	0	206	27	0	0	91	0	0
Grp Sat Flow(s),veh/h/ln	1697	0	1798	1570	0	1702	1480	0	1372	1206	0	0
Q Serve(g_s), s	0.7	0.0	14.1	17.9	0.0	6.0	0.0	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	14.1	17.9	0.0	6.0	0.7	0.0	0.0	3.9	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.35	0.89		1.00	0.79		0.11
Lane Grp Cap(c), veh/h	24	0	375	409	0	774	649	0		540	0	0
V/C Ratio(X)	0.62	0.00	0.87	0.89	0.00	0.27	0.04	0.00		0.17	0.00	0.00
Avail Cap(c_a), veh/h	85	0	472	549	0	958	649	0		540	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	30.6	28.5	0.0	13.5	15.6	0.0	0.0	16.5	0.0	0.0
Incr Delay (d2), s/veh	23.5	0.0	14.0	13.3	0.0	0.2	0.1	0.0	0.0	0.7	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	0.4	0.0	7.3	7.8	0.0	2.2	0.3	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	0.0	44.6	41.8	0.0	13.7	15.7	0.0	0.0	17.2	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		343			570			27	A		91	
Approach Delay, s/veh		45.4			31.6			15.7			17.2	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		34.5	24.8	20.7		34.5	5.1	40.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	28.0	21.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		2.7	19.9	16.1		5.9	2.7	8.0				
Green Ext Time (p_c), s		0.0	1.0	0.6		0.2	0.0	0.8				

Intersection Summary		
HCM 6th Ctrl Delay		34.5
HCM 6th LOS		C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	498	431	0	306	131
Future Volume (veh/h)	0	498	431	0	306	131
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1590	1992	0	1678	1470
Adj Flow Rate, veh/h	0	566	490	0	348	149
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	11	7	0	15	29
Cap, veh/h	0	606	759	0	829	647
Arrive On Green	0.00	0.38	0.38	0.00	0.52	0.52
Sat Flow, veh/h	0	1590	1992	0	1598	1246
Grp Volume(v), veh/h	0	566	490	0	348	149
Grp Sat Flow(s),veh/h/ln	0	1590	1992	0	1598	1246
Q Serve(g_s), s	0.0	27.4	16.2	0.0	10.7	5.2
Cycle Q Clear(g_c), s	0.0	27.4	16.2	0.0	10.7	5.2
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	606	759	0	829	647
V/C Ratio(X)	0.00	0.93	0.65	0.00	0.42	0.23
Avail Cap(c_a), veh/h	0	676	846	0	829	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.8	20.3	0.0	11.8	10.5
Incr Delay (d2), s/veh	0.0	19.1	1.5	0.0	1.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.6	7.2	0.0	3.8	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	42.9	21.8	0.0	13.4	11.3
LnGrp LOS	A	D	C	A	B	B
Approach Vol, veh/h		566	490		497	
Approach Delay, s/veh		42.9	21.8		12.8	
Approach LOS		D	C		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	34.5	45.5	34.5
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	34.0	38.0	34.0
Max Q Clear Time (g_c+I1), s	29.4	12.7	18.2
Green Ext Time (p_c), s	1.1	2.3	1.8

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	689	0	0	634	108	307
Future Volume (veh/h)	689	0	0	634	108	307
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2007	0	0	1679	1574	1678
Adj Flow Rate, veh/h	783	0	0	720	123	349
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	0	5	22	15
Cap, veh/h	931	0	0	779	654	620
Arrive On Green	0.46	0.00	0.00	0.46	0.44	0.44
Sat Flow, veh/h	2007	0	0	1679	1499	1422
Grp Volume(v), veh/h	783	0	0	720	123	349
Grp Sat Flow(s),veh/h/ln	2007	0	0	1679	1499	1422
Q Serve(g_s), s	27.4	0.0	0.0	32.2	4.0	14.7
Cycle Q Clear(g_c), s	27.4	0.0	0.0	32.2	4.0	14.7
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	931	0	0	779	654	620
V/C Ratio(X)	0.84	0.00	0.00	0.92	0.19	0.56
Avail Cap(c_a), veh/h	1204	0	0	1007	654	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	0.0	0.0	20.1	13.9	16.9
Incr Delay (d2), s/veh	4.4	0.0	0.0	11.7	0.6	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	0.0	0.0	13.6	1.4	5.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.2	0.0	0.0	31.8	14.5	20.5
LnGrp LOS	C	A	A	C	B	C
Approach Vol, veh/h	783			720	472	
Approach Delay, s/veh	23.2			31.8	19.0	
Approach LOS	C			C	B	

Timer - Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		38.9		41.1				41.1
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		24.0		48.0				48.0
Max Q Clear Time (g_c+I1), s		16.7		29.4				34.2
Green Ext Time (p_c), s		1.3		3.6				2.9

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	43.0	0.1	908.9	340.9	324.4
Total Del/Veh (s)	1029.7	20.2	1.0	879.7	259.2

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	28.9	896.0	393.6
Total Del/Veh (s)	55.5	24.9	220.2	81.7

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	179.6	71.2
Total Del/Veh (s)	12.8	26.6	47.9	31.3

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	64.1	0.1	22.1
Total Del/Veh (s)	127.0	3.7	45.5

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	30.2	9.9	16.5
Total Del/Veh (s)	43.8	46.4	45.6

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	34.8	9.0	17.3
Total Del/Veh (s)	138.3	13.5	53.9

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	248.4	158.6
Total Del/Veh (s)	1.6	7.5	5.0

Total Zone Performance

Denied Del/Veh (s)	426.5
Total Del/Veh (s)	1086.0

Intersection: 6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	51	2428	182	308	26	768
Average Queue (ft)	8	1327	133	151	7	516
95th Queue (ft)	38	3703	209	345	28	1346
Link Distance (ft)		3858		293		1168
Upstream Blk Time (%)		11		4	6	30
Queuing Penalty (veh)		0		37	0	0
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	1	69	14	2	6	
Queuing Penalty (veh)	2	9	53	10	25	

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	132	209	597
Average Queue (ft)	119	164	453
95th Queue (ft)	140	251	800
Link Distance (ft)	120	186	622
Upstream Blk Time (%)	66	23	54
Queuing Penalty (veh)	349	122	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	154	207	216	451
Average Queue (ft)	82	187	127	203
95th Queue (ft)	242	221	233	550
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	2	35		16
Queuing Penalty (veh)	14	271		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			19	1
Queuing Penalty (veh)			76	3

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB
Directions Served	T	R	T
Maximum Queue (ft)	307	261	130
Average Queue (ft)	214	138	35
95th Queue (ft)	397	375	125
Link Distance (ft)	293	293	120
Upstream Blk Time (%)	55	43	3
Queuing Penalty (veh)	198	155	23
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	EB	WB
Directions Served	T	TR
Maximum Queue (ft)	136	588
Average Queue (ft)	107	359
95th Queue (ft)	259	745
Link Distance (ft)	186	574
Upstream Blk Time (%)	55	23
Queuing Penalty (veh)	495	230
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	524	213
Average Queue (ft)	367	88
95th Queue (ft)	779	251
Link Distance (ft)	574	206
Upstream Blk Time (%)	57	22
Queuing Penalty (veh)	510	213
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB	WB
Directions Served	T	R
Maximum Queue (ft)	130	16
Average Queue (ft)	92	1
95th Queue (ft)	153	14
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2794

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	179	27	481	257	129	35	9	426	111	10	15
Future Volume (veh/h)	13	179	27	481	257	129	35	9	426	111	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1811	1663	1870	1856	1796	1870	1663	1826	1870	1870
Adj Flow Rate, veh/h	14	195	29	523	279	140	38	10	0	121	11	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	6	16	2	3	7	2	16	5	2	2
Cap, veh/h	24	237	35	561	575	289	488	119		490	46	55
Arrive On Green	0.01	0.15	0.15	0.35	0.49	0.49	0.35	0.35	0.00	0.35	0.35	0.35
Sat Flow, veh/h	1781	1591	237	1584	1175	589	1173	344	1409	1176	133	159
Grp Volume(v), veh/h	14	0	224	523	0	419	48	0	0	148	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1828	1584	0	1764	1517	0	1409	1468	0	0
Q Serve(g_s), s	0.6	0.0	9.5	25.5	0.0	12.7	0.0	0.0	0.0	4.1	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	9.5	25.5	0.0	12.7	1.5	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.33	0.79		1.00	0.82		0.11
Lane Grp Cap(c), veh/h	24	0	272	561	0	864	607	0		591	0	0
V/C Ratio(X)	0.59	0.00	0.82	0.93	0.00	0.48	0.08	0.00		0.25	0.00	0.00
Avail Cap(c_a), veh/h	89	0	411	614	0	992	607	0		591	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	33.0	24.9	0.0	13.7	17.5	0.0	0.0	18.8	0.0	0.0
Incr Delay (d2), s/veh	20.9	0.0	7.9	20.4	0.0	0.4	0.3	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	0.4	0.0	4.6	12.0	0.0	4.6	0.6	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	41.0	45.3	0.0	14.1	17.8	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		238			942			48	A		148	
Approach Delay, s/veh		42.1			31.4			17.8			19.8	
Approach LOS		D			C			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.7	32.3	15.9		31.7	5.1	43.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	31.0	18.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		3.5	27.5	11.5		7.5	2.6	14.7				
Green Ext Time (p_c), s		0.1	0.8	0.4		0.4	0.0	1.8				

Intersection Summary		
HCM 6th Ctrl Delay		31.5
HCM 6th LOS		C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	531	663	0	367	217
Future Volume (veh/h)	0	531	663	0	367	217
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1634	1977	0	1826	1663
Adj Flow Rate, veh/h	0	577	721	0	399	236
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	8	8	0	5	16
Cap, veh/h	0	640	774	0	884	717
Arrive On Green	0.00	0.39	0.39	0.00	0.51	0.51
Sat Flow, veh/h	0	1634	1977	0	1739	1409
Grp Volume(v), veh/h	0	577	721	0	399	236
Grp Sat Flow(s),veh/h/ln	0	1634	1977	0	1739	1409
Q Serve(g_s), s	0.0	26.6	28.0	0.0	11.7	7.9
Cycle Q Clear(g_c), s	0.0	26.6	28.0	0.0	11.7	7.9
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	640	774	0	884	717
V/C Ratio(X)	0.00	0.90	0.93	0.00	0.45	0.33
Avail Cap(c_a), veh/h	0	695	840	0	884	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	22.9	23.3	0.0	12.5	11.6
Incr Delay (d2), s/veh	0.0	14.4	16.2	0.0	1.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.8	15.3	0.0	4.6	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	37.2	39.5	0.0	14.2	12.8
LnGrp LOS	A	D	D	A	B	B
Approach Vol, veh/h		577	721		635	
Approach Delay, s/veh		37.2	39.5		13.7	
Approach LOS		D	D		B	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				35.3		44.7		35.3
Change Period (Y+Rc), s				4.0		4.0		4.0
Max Green Setting (Gmax), s				34.0		38.0		34.0
Max Q Clear Time (g_c+I1), s				28.6		13.7		30.0
Green Ext Time (p_c), s				1.3		2.9		1.4

Intersection Summary			
HCM 6th Ctrl Delay			30.4
HCM 6th LOS			C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	743	0	0	778	210	404
Future Volume (veh/h)	743	0	0	778	210	404
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2037	0	0	1708	1604	1870
Adj Flow Rate, veh/h	808	0	0	846	228	439
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	0	0	3	20	2
Cap, veh/h	1068	0	0	896	574	595
Arrive On Green	0.52	0.00	0.00	0.52	0.38	0.38
Sat Flow, veh/h	2037	0	0	1708	1527	1585
Grp Volume(v), veh/h	808	0	0	846	228	439
Grp Sat Flow(s),veh/h/ln	2037	0	0	1708	1527	1585
Q Serve(g_s), s	25.0	0.0	0.0	37.3	8.8	19.1
Cycle Q Clear(g_c), s	25.0	0.0	0.0	37.3	8.8	19.1
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1068	0	0	896	574	595
V/C Ratio(X)	0.76	0.00	0.00	0.94	0.40	0.74
Avail Cap(c_a), veh/h	1197	0	0	1004	574	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	0.0	17.9	18.3	21.6
Incr Delay (d2), s/veh	2.5	0.0	0.0	15.8	2.1	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	0.0	16.4	3.3	8.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.5	0.0	0.0	33.7	20.4	29.5
LnGrp LOS	B	A	A	C	C	C
Approach Vol, veh/h	808			846	667	
Approach Delay, s/veh	17.5			33.7	26.4	
Approach LOS	B			C	C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	34.0	46.0	46.0
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	25.0	47.0	47.0
Max Q Clear Time (g_c+I1), s	21.1	27.0	39.3
Green Ext Time (p_c), s	1.2	3.9	2.6

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.1	2.5	0.1	0.8
Total Del/Veh (s)	33.7	21.7	0.7	14.0	18.6

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	2.4	0.5
Total Del/Veh (s)	9.3	8.6	5.6	8.3

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.2	0.4
Total Del/Veh (s)	9.9	8.4	5.4	8.6

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	6.7	2.6	5.0

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.1	0.9	2.1

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.1	2.7	1.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.2	0.1
Total Del/Veh (s)	2.8	1.0	2.0

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	335.1

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	72	257	187	297	25	90
Average Queue (ft)	12	145	142	104	8	30
95th Queue (ft)	44	230	200	252	27	68
Link Distance (ft)		3858		292		1168
Upstream Blk Time (%)				1	6	
Queuing Penalty (veh)				3	0	
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	2	39	13	0		
Queuing Penalty (veh)	7	5	21	1		

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	122	130	88	124
Average Queue (ft)	91	63	40	54
95th Queue (ft)	128	107	74	93
Link Distance (ft)	109	186	621	
Upstream Blk Time (%)	3	0		
Queuing Penalty (veh)	12	0		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	157	121	82	94
Average Queue (ft)	74	64	43	41
95th Queue (ft)	122	101	73	74
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB
Directions Served	T	R	T
Maximum Queue (ft)	192	72	85
Average Queue (ft)	44	3	4
95th Queue (ft)	138	45	33
Link Distance (ft)	292	292	109
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		1	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	WB
Directions Served	TR
Maximum Queue (ft)	17
Average Queue (ft)	1
95th Queue (ft)	16
Link Distance (ft)	574
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB
Directions Served	TR
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	9
Link Distance (ft)	574
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 51

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	262	23	275	110	46	18	3	302	54	8	9
Future Volume (veh/h)	13	262	23	275	110	46	18	3	302	54	8	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1826	1826	1648	1811	1870	1811	1870	1618	1811	1530	1870
Adj Flow Rate, veh/h	15	298	26	312	125	52	20	3	0	61	9	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	5	5	17	6	2	6	2	19	6	25	2
Cap, veh/h	24	343	30	357	511	212	611	86		454	65	63
Arrive On Green	0.01	0.21	0.21	0.23	0.42	0.42	0.42	0.42	0.00	0.42	0.42	0.42
Sat Flow, veh/h	1697	1655	144	1570	1215	505	1268	207	1372	902	158	151
Grp Volume(v), veh/h	15	0	324	312	0	177	23	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	1697	0	1800	1570	0	1720	1475	0	1372	1211	0	0
Q Serve(g_s), s	0.7	0.0	13.9	15.3	0.0	5.3	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	13.9	15.3	0.0	5.3	0.6	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.29	0.87		1.00	0.76		0.12
Lane Grp Cap(c), veh/h	24	0	373	357	0	723	697	0		582	0	0
V/C Ratio(X)	0.62	0.00	0.87	0.87	0.00	0.24	0.03	0.00		0.14	0.00	0.00
Avail Cap(c_a), veh/h	85	0	495	530	0	968	697	0		582	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	30.7	29.8	0.0	15.0	13.8	0.0	0.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	23.5	0.0	12.1	10.5	0.0	0.2	0.1	0.0	0.0	0.5	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	0.4	0.0	7.0	6.5	0.0	2.0	0.3	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	0.0	42.8	40.3	0.0	15.1	13.9	0.0	0.0	15.1	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		339			489			23	A		80	
Approach Delay, s/veh		43.7			31.2			13.9			15.1	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.2	22.2	20.6		37.2	5.1	37.6				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	27.0	22.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		2.6	17.3	15.9		5.2	2.7	7.3				
Green Ext Time (p_c), s		0.0	0.9	0.7		0.2	0.0	0.7				

Intersection Summary		
HCM 6th Ctrl Delay		33.9
HCM 6th LOS		C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	459	332	0	87	110
Future Vol, veh/h	0	459	332	0	87	110
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	11	7	10	15	29
Mvmt Flow	0	522	377	0	99	125
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	25.1	15.9	11.7
HCM LOS	D	C	B

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	459	332	87	110
LT Vol	0	0	87	0
Through Vol	459	332	0	0
RT Vol	0	0	0	110
Lane Flow Rate	522	377	99	125
Geometry Grp	2	2	7	7
Degree of Util (X)	0.782	0.579	0.208	0.229
Departure Headway (Hd)	5.396	5.528	7.581	6.599
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	673	653	474	544
Service Time	3.432	3.568	5.332	4.35
HCM Lane V/C Ratio	0.776	0.577	0.209	0.23
HCM Control Delay	25.1	15.9	12.3	11.3
HCM Lane LOS	D	C	B	B
HCM 95th-tile Q	7.6	3.7	0.8	0.9

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	450	0	0	326	95	92
Future Vol, veh/h	450	0	0	326	95	92
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	5	22	15
Mvmt Flow	511	0	0	370	108	105
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	22	15.1	11.5
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	92	450	326
LT Vol	95	0	0	0
Through Vol	0	0	450	326
RT Vol	0	92	0	0
Lane Flow Rate	108	105	511	370
Geometry Grp	7	7	2	2
Degree of Util (X)	0.228	0.182	0.745	0.557
Departure Headway (Hd)	7.617	6.272	5.246	5.415
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	472	572	690	667
Service Time	5.363	4.017	3.278	3.449
HCM Lane V/C Ratio	0.229	0.184	0.741	0.555
HCM Control Delay	12.6	10.4	22	15.1
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	0.9	0.7	6.7	3.4

6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	1.6	0.2	0.5
Total Del/Veh (s)	33.1	21.4	1.4	13.7	17.4

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	8.7	13.0	6.3	10.0

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.2	0.6
Total Del/Veh (s)	9.5	10.1	5.9	8.8

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	1192.8

Intersection: 6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	74	190	184	305	41	102
Average Queue (ft)	14	97	155	177	16	37
95th Queue (ft)	51	167	200	333	39	81
Link Distance (ft)		3858		293		1168
Upstream Blk Time (%)				3	14	
Queuing Penalty (veh)				18	0	
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	1	27	14	2	14	
Queuing Penalty (veh)	2	4	45	8	44	

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	118	195	75	107
Average Queue (ft)	80	101	39	56
95th Queue (ft)	115	170	66	89
Link Distance (ft)	108	186	621	621
Upstream Blk Time (%)	1	2		
Queuing Penalty (veh)	5	8		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	138	161	99	79
Average Queue (ft)	68	82	49	43
95th Queue (ft)	108	136	80	67
Link Distance (ft)	206	187		649
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)			200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 135

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	171	24	351	252	74	32	9	326	64	10	15
Future Volume (veh/h)	13	171	24	351	252	74	32	9	326	64	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1811	1663	1870	1856	1796	1870	1663	1826	1870	1870
Adj Flow Rate, veh/h	14	186	26	382	274	80	35	10	0	70	11	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	6	16	2	3	7	2	16	5	2	2
Cap, veh/h	24	228	32	431	557	163	577	155		532	86	107
Arrive On Green	0.01	0.14	0.14	0.27	0.40	0.40	0.44	0.44	0.00	0.44	0.44	0.44
Sat Flow, veh/h	1781	1606	224	1584	1391	406	1141	357	1409	1043	197	245
Grp Volume(v), veh/h	14	0	212	382	0	354	45	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1830	1584	0	1797	1497	0	1409	1485	0	0
Q Serve(g_s), s	0.6	0.0	9.0	18.5	0.0	11.8	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	9.0	18.5	0.0	11.8	1.1	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.23	0.78		1.00	0.72		0.16
Lane Grp Cap(c), veh/h	24	0	260	431	0	720	733	0		725	0	0
V/C Ratio(X)	0.59	0.00	0.82	0.89	0.00	0.49	0.06	0.00		0.13	0.00	0.00
Avail Cap(c_a), veh/h	89	0	389	633	0	1011	733	0		725	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	33.3	27.9	0.0	17.9	13.0	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	20.9	0.0	8.0	10.3	0.0	0.5	0.2	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	0.4	0.0	4.4	7.8	0.0	4.6	0.5	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	41.3	38.2	0.0	18.4	13.2	0.0	0.0	13.9	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		226			736			45	A		97	
Approach Delay, s/veh		42.5			28.7			13.2			13.9	
Approach LOS		D			C			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	38.9	25.8	15.4	38.9	5.1	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	19.0	32.0	17.0	19.0	4.0	45.0
Max Q Clear Time (g_c+I1), s	3.1	20.5	11.0	4.9	2.6	13.8
Green Ext Time (p_c), s	0.1	1.2	0.4	0.2	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	29.4
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	417	529	0	106	158
Future Vol, veh/h	0	417	529	0	106	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	8	8	10	5	16
Mvmt Flow	0	453	575	0	115	172
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	24.1	41.7	13
HCM LOS	C	E	B

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	529	106	158
LT Vol	0	0	106	0
Through Vol	417	529	0	0
RT Vol	0	0	0	158
Lane Flow Rate	453	575	115	172
Geometry Grp	2	2	7	7
Degree of Util (X)	0.742	0.913	0.25	0.323
Departure Headway (Hd)	5.891	5.716	7.802	6.764
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	633	459	529
Service Time	3.961	3.781	5.585	4.546
HCM Lane V/C Ratio	0.74	0.908	0.251	0.325
HCM Control Delay	24.1	41.7	13.2	12.8
HCM Lane LOS	C	E	B	B
HCM 95th-tile Q	6.5	11.6	1	1.4

Intersection	
Intersection Delay, s/veh	20.3
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	406	0	0	448	142	135
Future Vol, veh/h	406	0	0	448	142	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	2	3	20	2
Mvmt Flow	441	0	0	487	154	147
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	21	24.4	12.8
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	142	135	406	448
LT Vol	142	0	0	0
Through Vol	0	0	406	448
RT Vol	0	135	0	0
Lane Flow Rate	154	147	441	487
Geometry Grp	7	7	2	2
Degree of Util (X)	0.334	0.255	0.698	0.76
Departure Headway (Hd)	7.789	6.25	5.697	5.617
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	460	572	631	643
Service Time	5.558	4.017	3.757	3.674
HCM Lane V/C Ratio	0.335	0.257	0.699	0.757
HCM Control Delay	14.4	11.2	21	24.4
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.4	1	5.6	7

6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	6.2	0.2	1.7
Total Del/Veh (s)	38.8	23.5	1.3	19.3	19.6

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	12.9	18.4	12.9	15.2

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.1	0.5
Total Del/Veh (s)	16.0	20.9	7.8	15.8

Total Zone Performance

Denied Del/Veh (s)	2.4
Total Del/Veh (s)	1230.8

Intersection: 6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	73	262	178	310	37	133
Average Queue (ft)	13	103	144	167	15	41
95th Queue (ft)	50	213	204	342	38	96
Link Distance (ft)		3858		293		1168
Upstream Blk Time (%)				4	13	
Queuing Penalty (veh)				28	0	
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	1	28	13	6	13	
Queuing Penalty (veh)	2	4	44	22	42	

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	125	204	148	143
Average Queue (ft)	104	164	42	62
95th Queue (ft)	138	231	122	122
Link Distance (ft)	108	186	621	621
Upstream Blk Time (%)	15	10		
Queuing Penalty (veh)	63	51		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	220	204	146	97
Average Queue (ft)	162	162	55	41
95th Queue (ft)	241	224	118	82
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	1	6		
Queuing Penalty (veh)	6	25		
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Zone Summary

Zone wide Queuing Penalty: 287

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	171	24	351	252	74	32	9	326	64	10	15
Future Volume (veh/h)	13	171	24	351	252	74	32	9	326	64	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1811	1663	1870	1856	1796	1870	1663	1826	1870	1870
Adj Flow Rate, veh/h	14	186	26	382	274	80	35	10	0	70	11	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	6	16	2	3	7	2	16	5	2	2
Cap, veh/h	24	228	32	431	557	163	577	155		532	86	107
Arrive On Green	0.01	0.14	0.14	0.27	0.40	0.40	0.44	0.44	0.00	0.44	0.44	0.44
Sat Flow, veh/h	1781	1606	224	1584	1391	406	1141	357	1409	1043	197	245
Grp Volume(v), veh/h	14	0	212	382	0	354	45	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1830	1584	0	1797	1497	0	1409	1485	0	0
Q Serve(g_s), s	0.6	0.0	9.0	18.5	0.0	11.8	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	9.0	18.5	0.0	11.8	1.1	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.23	0.78		1.00	0.72		0.16
Lane Grp Cap(c), veh/h	24	0	260	431	0	720	733	0		725	0	0
V/C Ratio(X)	0.59	0.00	0.82	0.89	0.00	0.49	0.06	0.00		0.13	0.00	0.00
Avail Cap(c_a), veh/h	89	0	389	633	0	1011	733	0		725	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	33.3	27.9	0.0	17.9	13.0	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	20.9	0.0	8.0	10.3	0.0	0.5	0.2	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	0.4	0.0	4.4	7.8	0.0	4.6	0.5	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	41.3	38.2	0.0	18.4	13.2	0.0	0.0	13.9	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		226			736			45	A		97	
Approach Delay, s/veh		42.5			28.7			13.2			13.9	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		38.9	25.8	15.4		38.9	5.1	36.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	32.0	17.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		3.1	20.5	11.0		4.9	2.6	13.8				
Green Ext Time (p_c), s		0.1	1.2	0.4		0.2	0.0	1.5				

Intersection Summary			
HCM 6th Ctrl Delay			29.6
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	0	417	529	0	106	158		
Future Volume (veh/h)	0	417	529	0	106	158		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No	No		No			
Adj Sat Flow, veh/h/ln	0	1634	1977	0	1826	1663		
Adj Flow Rate, veh/h	0	453	575	0	115	172		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	0	8	8	0	5	16		
Cap, veh/h	0	531	642	0	1000	810		
Arrive On Green	0.00	0.32	0.32	0.00	0.58	0.58		
Sat Flow, veh/h	0	1634	1977	0	1739	1409		
Grp Volume(v), veh/h	0	453	575	0	115	172		
Grp Sat Flow(s),veh/h/ln	0	1634	1977	0	1739	1409		
Q Serve(g_s), s	0.0	20.7	22.2	0.0	2.4	4.7		
Cycle Q Clear(g_c), s	0.0	20.7	22.2	0.0	2.4	4.7		
Prop In Lane	0.00			0.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	531	642	0	1000	810		
V/C Ratio(X)	0.00	0.85	0.90	0.00	0.12	0.21		
Avail Cap(c_a), veh/h	0	695	840	0	1000	810		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	25.2	25.7	0.0	7.7	8.2		
Incr Delay (d2), s/veh	0.0	8.0	10.0	0.0	0.2	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	8.6	11.4	0.0	0.9	1.4		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	0.0	33.2	35.7	0.0	8.0	8.8		
LnGrp LOS	A	C	D	A	A	A		
Approach Vol, veh/h		453	575		287			
Approach Delay, s/veh		33.2	35.7		8.5			
Approach LOS		C	D		A			
Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				30.0		50.0		30.0
Change Period (Y+Rc), s				4.0		4.0		4.0
Max Green Setting (Gmax), s				34.0		38.0		34.0
Max Q Clear Time (g_c+I1), s				22.7		6.7		24.2
Green Ext Time (p_c), s				1.5		1.3		1.8
Intersection Summary								
HCM 6th Ctrl Delay			28.9					
HCM 6th LOS			C					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Volume (veh/h)	406	0	0	448	142	135
Future Volume (veh/h)	406	0	0	448	142	135
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2037	0	0	1708	1604	1870
Adj Flow Rate, veh/h	441	0	0	487	154	147
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	0	0	3	20	2
Cap, veh/h	653	0	0	548	885	918
Arrive On Green	0.32	0.00	0.00	0.32	0.58	0.58
Sat Flow, veh/h	2037	0	0	1708	1527	1585
Grp Volume(v), veh/h	441	0	0	487	154	147
Grp Sat Flow(s),veh/h/ln	2037	0	0	1708	1527	1585
Q Serve(g_s), s	15.0	0.0	0.0	21.7	3.8	3.4
Cycle Q Clear(g_c), s	15.0	0.0	0.0	21.7	3.8	3.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	653	0	0	548	885	918
V/C Ratio(X)	0.67	0.00	0.00	0.89	0.17	0.16
Avail Cap(c_a), veh/h	1197	0	0	1004	885	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	0.0	25.8	7.9	7.8
Incr Delay (d2), s/veh	1.2	0.0	0.0	5.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.0	9.0	1.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.8	0.0	0.0	30.9	8.3	8.2
LnGrp LOS	C	A	A	C	A	A
Approach Vol, veh/h	441			487	301	
Approach Delay, s/veh	24.8			30.9	8.2	
Approach LOS	C			C	A	

Timer - Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		50.3		29.7				29.7
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		25.0		47.0				47.0
Max Q Clear Time (g_c+I1), s		5.8		17.0				23.7
Green Ext Time (p_c), s		1.2		1.8				2.0

Intersection Summary		
HCM 6th Ctrl Delay		23.2
HCM 6th LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	262	26	314	110	46	21	3	335	54	8	9
Future Volume (veh/h)	13	262	26	314	110	46	21	3	335	54	8	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1826	1826	1648	1811	1870	1811	1870	1618	1811	1530	1870
Adj Flow Rate, veh/h	15	298	30	357	125	52	24	3	0	61	9	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	5	5	17	6	2	6	2	19	6	25	2
Cap, veh/h	24	341	34	402	547	228	584	68		426	61	58
Arrive On Green	0.01	0.21	0.21	0.26	0.45	0.45	0.39	0.39	0.00	0.39	0.39	0.39
Sat Flow, veh/h	1697	1632	164	1570	1215	505	1296	177	1372	901	159	152
Grp Volume(v), veh/h	15	0	328	357	0	177	27	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	1697	0	1796	1570	0	1720	1473	0	1372	1212	0	0
Q Serve(g_s), s	0.7	0.0	14.1	17.5	0.0	5.0	0.0	0.0	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	14.1	17.5	0.0	5.0	0.7	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.29	0.89		1.00	0.76		0.12
Lane Grp Cap(c), veh/h	24	0	375	402	0	775	652	0		546	0	0
V/C Ratio(X)	0.62	0.00	0.87	0.89	0.00	0.23	0.04	0.00		0.15	0.00	0.00
Avail Cap(c_a), veh/h	85	0	472	549	0	968	652	0		546	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	30.6	28.7	0.0	13.5	15.3	0.0	0.0	16.1	0.0	0.0
Incr Delay (d2), s/veh	23.5	0.0	14.0	12.8	0.0	0.1	0.1	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	0.4	0.0	7.3	7.6	0.0	1.8	0.3	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	0.0	44.6	41.5	0.0	13.6	15.5	0.0	0.0	16.7	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		343			534			27	A		80	
Approach Delay, s/veh		45.4			32.2			15.5			16.7	
Approach LOS		D			C			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		34.8	24.5	20.7		34.8	5.1	40.1				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	28.0	21.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		2.7	19.5	16.1		5.3	2.7	7.0				
Green Ext Time (p_c), s		0.0	1.0	0.6		0.2	0.0	0.7				

Intersection Summary		
HCM 6th Ctrl Delay		35.1
HCM 6th LOS		D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	486	355	0	89	127
Future Volume (veh/h)	0	486	355	0	89	127
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1590	1992	0	1678	1470
Adj Flow Rate, veh/h	0	552	403	0	101	144
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	11	7	0	15	29
Cap, veh/h	0	593	743	0	842	656
Arrive On Green	0.00	0.37	0.37	0.00	0.53	0.53
Sat Flow, veh/h	0	1590	1992	0	1598	1246
Grp Volume(v), veh/h	0	552	403	0	101	144
Grp Sat Flow(s),veh/h/ln	0	1590	1992	0	1598	1246
Q Serve(g_s), s	0.0	26.7	12.7	0.0	2.6	4.9
Cycle Q Clear(g_c), s	0.0	26.7	12.7	0.0	2.6	4.9
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	593	743	0	842	656
V/C Ratio(X)	0.00	0.93	0.54	0.00	0.12	0.22
Avail Cap(c_a), veh/h	0	676	846	0	842	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	19.7	0.0	9.6	10.1
Incr Delay (d2), s/veh	0.0	18.2	0.6	0.0	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.2	5.6	0.0	0.9	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	42.3	20.3	0.0	9.9	10.9
LnGrp LOS	A	D	C	A	A	B
Approach Vol, veh/h		552	403		245	
Approach Delay, s/veh		42.3	20.3		10.5	
Approach LOS		D	C		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	33.9	46.1	33.9
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	34.0	38.0	34.0
Max Q Clear Time (g_c+I1), s	28.7	6.9	14.7
Green Ext Time (p_c), s	1.2	1.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	462	0	0	340	104	92
Future Volume (veh/h)	462	0	0	340	104	92
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2007	0	0	1679	1574	1678
Adj Flow Rate, veh/h	525	0	0	386	118	105
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	0	5	22	15
Cap, veh/h	604	0	0	505	898	852
Arrive On Green	0.30	0.00	0.00	0.30	0.60	0.60
Sat Flow, veh/h	2007	0	0	1679	1499	1422
Grp Volume(v), veh/h	525	0	0	386	118	105
Grp Sat Flow(s),veh/h/ln	2007	0	0	1679	1499	1422
Q Serve(g_s), s	19.8	0.0	0.0	16.7	2.7	2.6
Cycle Q Clear(g_c), s	19.8	0.0	0.0	16.7	2.7	2.6
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	604	0	0	505	898	852
V/C Ratio(X)	0.87	0.00	0.00	0.76	0.13	0.12
Avail Cap(c_a), veh/h	1204	0	0	1007	898	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	0.0	25.4	7.0	6.9
Incr Delay (d2), s/veh	4.0	0.0	0.0	2.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	0.0	0.0	6.6	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.5	0.0	0.0	27.8	7.3	7.2
LnGrp LOS	C	A	A	C	A	A
Approach Vol, veh/h	525			386	223	
Approach Delay, s/veh	30.5			27.8	7.3	
Approach LOS	C			C	A	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	51.9	28.1	28.1
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	48.0	48.0
Max Q Clear Time (g_c+I1), s	4.7	21.8	18.7
Green Ext Time (p_c), s	0.8	2.3	1.6

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	171	27	393	252	76	35	9	364	64	10	15
Future Volume (veh/h)	13	171	27	393	252	76	35	9	364	64	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1811	1663	1870	1856	1796	1870	1663	1826	1870	1870
Adj Flow Rate, veh/h	14	186	29	427	274	83	38	10	0	70	11	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	6	16	2	3	7	2	16	5	2	2
Cap, veh/h	24	228	36	473	592	179	552	136		501	81	100
Arrive On Green	0.01	0.14	0.14	0.30	0.43	0.43	0.41	0.41	0.00	0.41	0.41	0.41
Sat Flow, veh/h	1781	1580	246	1584	1378	417	1160	335	1409	1042	200	245
Grp Volume(v), veh/h	14	0	215	427	0	357	48	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1826	1584	0	1795	1495	0	1409	1487	0	0
Q Serve(g_s), s	0.6	0.0	9.1	20.7	0.0	11.3	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	9.1	20.7	0.0	11.3	1.3	0.0	0.0	3.0	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.23	0.79		1.00	0.72		0.16
Lane Grp Cap(c), veh/h	24	0	264	473	0	772	689	0		683	0	0
V/C Ratio(X)	0.59	0.00	0.82	0.90	0.00	0.46	0.07	0.00		0.14	0.00	0.00
Avail Cap(c_a), veh/h	89	0	411	614	0	1010	689	0		683	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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	0.0	33.2	26.9	0.0	16.2	14.5	0.0	0.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	20.9	0.0	7.0	13.9	0.0	0.4	0.2	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	0.4	0.0	4.4	9.1	0.0	4.4	0.5	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	40.2	40.9	0.0	16.7	14.6	0.0	0.0	15.4	0.0	0.0
LnGrp LOS	E	A	D	D	A	B	B	A		B	A	A
Approach Vol, veh/h		229			784			48	A		97	
Approach Delay, s/veh		41.5			29.8			14.6			15.4	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.5	27.9	15.5		36.5	5.1	38.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	31.0	18.0		19.0	4.0	45.0				
Max Q Clear Time (g_c+I1), s		3.3	22.7	11.1		5.0	2.6	13.3				
Green Ext Time (p_c), s		0.1	1.2	0.4		0.2	0.0	1.5				

Intersection Summary			
HCM 6th Ctrl Delay			30.3
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	0	434	555	0	106	175	
Future Volume (veh/h)	0	434	555	0	106	175	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	0	1634	1977	0	1826	1663	
Adj Flow Rate, veh/h	0	472	603	0	115	190	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	0	8	8	0	5	16	
Cap, veh/h	0	553	669	0	977	791	
Arrive On Green	0.00	0.34	0.34	0.00	0.56	0.56	
Sat Flow, veh/h	0	1634	1977	0	1739	1409	
Grp Volume(v), veh/h	0	472	603	0	115	190	
Grp Sat Flow(s),veh/h/ln	0	1634	1977	0	1739	1409	
Q Serve(g_s), s	0.0	21.5	23.2	0.0	2.5	5.5	
Cycle Q Clear(g_c), s	0.0	21.5	23.2	0.0	2.5	5.5	
Prop In Lane	0.00			0.00	1.00	1.00	
Lane Grp Cap(c), veh/h	0	553	669	0	977	791	
V/C Ratio(X)	0.00	0.85	0.90	0.00	0.12	0.24	
Avail Cap(c_a), veh/h	0	695	840	0	977	791	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	24.6	25.2	0.0	8.2	8.9	
Incr Delay (d2), s/veh	0.0	8.4	11.0	0.0	0.2	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	9.0	12.1	0.0	0.9	1.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	0.0	33.0	36.2	0.0	8.5	9.6	
LnGrp LOS	A	C	D	A	A	A	
Approach Vol, veh/h		472	603		305		
Approach Delay, s/veh		33.0	36.2		9.2		
Approach LOS		C	D		A		

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	31.1	48.9	31.1
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	34.0	38.0	34.0
Max Q Clear Time (g_c+I1), s	23.5	7.5	25.2
Green Ext Time (p_c), s	1.5	1.4	1.8

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	423	0	0	467	149	135
Future Volume (veh/h)	423	0	0	467	149	135
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2037	0	0	1708	1604	1870
Adj Flow Rate, veh/h	460	0	0	508	162	147
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	0	0	3	20	2
Cap, veh/h	679	0	0	569	865	898
Arrive On Green	0.33	0.00	0.00	0.33	0.57	0.57
Sat Flow, veh/h	2037	0	0	1708	1527	1585
Grp Volume(v), veh/h	460	0	0	508	162	147
Grp Sat Flow(s),veh/h/ln	2037	0	0	1708	1527	1585
Q Serve(g_s), s	15.6	0.0	0.0	22.6	4.1	3.5
Cycle Q Clear(g_c), s	15.6	0.0	0.0	22.6	4.1	3.5
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	679	0	0	569	865	898
V/C Ratio(X)	0.68	0.00	0.00	0.89	0.19	0.16
Avail Cap(c_a), veh/h	1197	0	0	1004	865	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	0.0	25.3	8.4	8.3
Incr Delay (d2), s/veh	1.2	0.0	0.0	5.3	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	0.0	9.3	1.3	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	0.0	0.0	30.6	8.9	8.7
LnGrp LOS	C	A	A	C	A	A
Approach Vol, veh/h	460			508	309	
Approach Delay, s/veh	24.2			30.6	8.8	
Approach LOS	C			C	A	

Timer - Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		49.3		30.7				30.7
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		25.0		47.0				47.0
Max Q Clear Time (g_c+I1), s		6.1		17.6				24.6
Green Ext Time (p_c), s		1.2		1.9				2.1

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	278	11	160	131	64	7	3	190	63	8	9
Future Vol, veh/h	13	278	11	160	131	64	7	3	190	63	8	9
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
Heavy Vehicles, %	8	5	2	35	5	2	2	2	38	6	25	2
Mvmt Flow	15	316	13	182	149	73	8	3	216	72	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.6	13	12.3	12.1
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	70%	0%	100%	0%	100%	0%	79%
Vol Thru, %	30%	0%	0%	96%	0%	67%	10%
Vol Right, %	0%	100%	0%	4%	0%	33%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	190	13	289	160	195	80
LT Vol	7	0	13	0	160	0	63
Through Vol	3	0	0	278	0	131	8
RT Vol	0	190	0	11	0	64	9
Lane Flow Rate	11	216	15	328	182	222	91
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.023	0.367	0.028	0.568	0.363	0.365	0.184
Departure Headway (Hd)	7.192	6.124	6.816	6.229	7.186	5.927	7.305
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	585	524	578	500	605	488
Service Time	4.967	3.898	4.58	3.993	4.95	3.69	5.396
HCM Lane V/C Ratio	0.022	0.369	0.029	0.567	0.364	0.367	0.186
HCM Control Delay	10.1	12.4	9.8	16.9	14	12.1	12.1
HCM Lane LOS	B	B	A	C	B	B	B
HCM 95th-tile Q	0.1	1.7	0.1	3.5	1.6	1.7	0.7

Intersection	
Intersection Delay, s/veh	29
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	391	323	0	306	80
Future Vol, veh/h	0	391	323	0	306	80
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	10	13	10	18	70
Mvmt Flow	0	444	367	0	348	91
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	30.1	22.5	33.3
HCM LOS	D	C	D

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	79%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	21%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	391	323	386
LT Vol	0	0	306
Through Vol	391	323	0
RT Vol	0	0	80
Lane Flow Rate	444	367	439
Geometry Grp	1	1	1
Degree of Util (X)	0.795	0.676	0.818
Departure Headway (Hd)	6.442	6.632	6.713
Convergence, Y/N	Yes	Yes	Yes
Cap	560	543	540
Service Time	4.486	4.68	4.754
HCM Lane V/C Ratio	0.793	0.676	0.813
HCM Control Delay	30.1	22.5	33.3
HCM Lane LOS	D	C	D
HCM 95th-tile Q	7.6	5.1	8.1

Intersection	
Intersection Delay, s/veh	118.7
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	633	0	0	577	57	307
Future Vol, veh/h	633	0	0	577	57	307
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	4	46	15
Mvmt Flow	719	0	0	656	65	349
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	169.4	122.6	24.3
HCM LOS	F	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	307	633	577
LT Vol	57	0	0	0
Through Vol	0	0	633	577
RT Vol	0	307	0	0
Lane Flow Rate	65	349	719	656
Geometry Grp	7	7	2	2
Degree of Util (X)	0.159	0.689	1.299	1.178
Departure Headway (Hd)	9.646	7.852	6.819	6.925
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	374	464	539	531
Service Time	7.346	5.552	4.819	4.925
HCM Lane V/C Ratio	0.174	0.752	1.334	1.235
HCM Control Delay	14.2	26.2	169.4	122.6
HCM Lane LOS	B	D	F	F
HCM 95th-tile Q	0.6	5.2	28.7	22

Intersection	
Intersection Delay, s/veh	22.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	190	12	311	268	129	21	9	258	111	10	15
Future Vol, veh/h	13	190	12	311	268	129	21	9	258	111	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	23	2	3	6	2	23	5	2	2
Mvmt Flow	14	207	13	338	291	140	23	10	280	121	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.4	28.5	17.2	15.4
HCM LOS	C	D	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	70%	0%	100%	0%	100%	0%	82%
Vol Thru, %	30%	0%	0%	94%	0%	68%	7%
Vol Right, %	0%	100%	0%	6%	0%	32%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	258	13	202	311	397	136
LT Vol	21	0	13	0	311	0	111
Through Vol	9	0	0	190	0	268	10
RT Vol	0	258	0	12	0	129	15
Lane Flow Rate	33	280	14	220	338	432	148
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.074	0.546	0.032	0.461	0.719	0.785	0.337
Departure Headway (Hd)	8.154	7.008	8.117	7.559	7.653	6.545	8.196
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	440	516	441	476	473	552	439
Service Time	5.899	4.753	5.871	5.313	5.4	4.291	6.25
HCM Lane V/C Ratio	0.075	0.543	0.032	0.462	0.715	0.783	0.337
HCM Control Delay	11.6	17.9	11.1	16.7	27.7	29.2	15.4
HCM Lane LOS	B	C	B	C	D	D	C
HCM 95th-tile Q	0.2	3.2	0.1	2.4	5.7	7.3	1.5

Intersection	
Intersection Delay, s/veh	89
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	415	545	0	367	164
Future Vol, veh/h	0	415	545	0	367	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	8	7	10	5	20
Mvmt Flow	0	451	592	0	399	178
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	47.4	112.7	97.3
HCM LOS	E	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	69%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	415	545	531
LT Vol	0	0	367
Through Vol	415	545	0
RT Vol	0	0	164
Lane Flow Rate	451	592	577
Geometry Grp	1	1	1
Degree of Util (X)	0.894	1.145	1.102
Departure Headway (Hd)	7.707	7.361	7.222
Convergence, Y/N	Yes	Yes	Yes
Cap	474	498	508
Service Time	5.707	5.361	5.222
HCM Lane V/C Ratio	0.951	1.189	1.136
HCM Control Delay	47.4	112.7	97.3
HCM Lane LOS	E	F	F
HCM 95th-tile Q	9.8	19.6	17.9

Intersection	
Intersection Delay, s/veh	173.5
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	679	0	0	713	157	404
Future Vol, veh/h	679	0	0	713	157	404
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	2	2	2	27	2
Mvmt Flow	738	0	0	775	171	439
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	215.2	242.7	35
HCM LOS	F	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	157	404	679	713
LT Vol	157	0	0	0
Through Vol	0	0	679	713
RT Vol	0	404	0	0
Lane Flow Rate	171	439	738	775
Geometry Grp	7	7	2	2
Degree of Util (X)	0.406	0.845	1.403	1.469
Departure Headway (Hd)	9.728	8.031	7.55	7.45
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	372	457	487	496
Service Time	7.428	5.731	5.55	5.45
HCM Lane V/C Ratio	0.46	0.961	1.515	1.563
HCM Control Delay	18.9	41.2	215.2	242.7
HCM Lane LOS	C	E	F	F
HCM 95th-tile Q	1.9	8.3	31.9	35.8

6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	67.0	0.0	626.8	30.4	198.5
Total Del/Veh (s)	535.6	6.0	0.3	427.3	161.9

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	489.1	182.7
Total Del/Veh (s)	43.1	11.3	188.6	73.8

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	2.0	0.6
Total Del/Veh (s)	40.3	21.5	13.1	24.7

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	37.7	0.0	17.0
Total Del/Veh (s)	99.4	2.7	45.8

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	8.7	0.1	3.6
Total Del/Veh (s)	33.2	4.1	16.0

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	31.8	0.0	13.1
Total Del/Veh (s)	127.2	4.0	54.9

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	15.9	8.7
Total Del/Veh (s)	2.5	5.5	4.1

Total Zone Performance

Denied Del/Veh (s)	193.3
Total Del/Veh (s)	1144.7

Intersection: 6: COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	60	1994	133	84	38	575
Average Queue (ft)	9	995	66	37	9	227
95th Queue (ft)	43	3074	111	66	32	801
Link Distance (ft)		3858		292		1168
Upstream Blk Time (%)		11			2	6
Queuing Penalty (veh)		0			0	0
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	0	68	0			
Queuing Penalty (veh)	0	9	0			

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	138	157	672
Average Queue (ft)	118	79	532
95th Queue (ft)	164	135	871
Link Distance (ft)	121	186	622
Upstream Blk Time (%)	48	0	67
Queuing Penalty (veh)	243	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	217	202	137	256
Average Queue (ft)	152	153	56	96
95th Queue (ft)	304	230	116	216
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	18	9		1
Queuing Penalty (veh)	122	59		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			2	0
Queuing Penalty (veh)			5	1

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB
Directions Served	T	R
Maximum Queue (ft)	307	282
Average Queue (ft)	246	203
95th Queue (ft)	416	440
Link Distance (ft)	292	292
Upstream Blk Time (%)	54	59
Queuing Penalty (veh)	181	198
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	EB	WB
Directions Served	T	TR
Maximum Queue (ft)	196	111
Average Queue (ft)	153	16
95th Queue (ft)	271	168
Link Distance (ft)	186	574
Upstream Blk Time (%)	33	2
Queuing Penalty (veh)	264	16
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	587	29
Average Queue (ft)	534	5
95th Queue (ft)	734	59
Link Distance (ft)	574	206
Upstream Blk Time (%)	38	2
Queuing Penalty (veh)	305	15
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB	WB
Directions Served	T	R
Maximum Queue (ft)	148	80
Average Queue (ft)	61	5
95th Queue (ft)	163	43
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1418

Intersection	
Intersection Delay, s/veh	26.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	264	25	320	117	64	21	3	347	63	8	9
Future Vol, veh/h	13	264	25	320	117	64	21	3	347	63	8	9
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
Heavy Vehicles, %	8	5	5	17	6	2	6	2	19	6	25	2
Mvmt Flow	15	300	28	364	133	73	24	3	394	72	9	10
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	25.4	29.2	27.7	14.7
HCM LOS	D	D	D	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	88%	0%	100%	0%	100%	0%	79%
Vol Thru, %	12%	0%	0%	91%	0%	65%	10%
Vol Right, %	0%	100%	0%	9%	0%	35%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	347	13	289	320	181	80
LT Vol	21	0	13	0	320	0	63
Through Vol	3	0	0	264	0	117	8
RT Vol	0	347	0	25	0	64	9
Lane Flow Rate	27	394	15	328	364	206	91
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.062	0.762	0.034	0.694	0.812	0.404	0.229
Departure Headway (Hd)	8.193	6.955	8.234	7.603	8.036	7.075	9.058
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	436	517	433	473	447	506	399
Service Time	5.962	4.724	6.018	5.387	5.82	4.858	7.058
HCM Lane V/C Ratio	0.062	0.762	0.035	0.693	0.814	0.407	0.228
HCM Control Delay	11.5	28.8	11.3	26	37.5	14.6	14.7
HCM Lane LOS	B	D	B	D	E	B	B
HCM 95th-tile Q	0.2	6.7	0.1	5.3	7.5	1.9	0.9

Intersection	
Intersection Delay, s/veh	77.2
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	498	431	0	306	131
Future Vol, veh/h	0	498	431	0	306	131
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	11	7	10	15	29
Mvmt Flow	0	566	490	0	348	149
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	107.7	56.4	63
HCM LOS	F	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	70%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	30%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	498	431	437
LT Vol	0	0	306
Through Vol	498	431	0
RT Vol	0	0	131
Lane Flow Rate	566	490	497
Geometry Grp	1	1	1
Degree of Util (X)	1.133	0.95	0.978
Departure Headway (Hd)	7.209	7.368	7.454
Convergence, Y/N	Yes	Yes	Yes
Cap	509	495	492
Service Time	5.209	5.368	5.454
HCM Lane V/C Ratio	1.112	0.99	1.01
HCM Control Delay	107.7	56.4	63
HCM Lane LOS	F	F	F
HCM 95th-tile Q	19.3	11.8	12.7

Intersection	
Intersection Delay, s/veh	161.2
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	689	0	0	634	108	307
Future Vol, veh/h	689	0	0	634	108	307
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	2	2	5	22	15
Mvmt Flow	783	0	0	720	123	349
Number of Lanes	1	0	0	1	1	1

Approach	EB			WB	NB
Opposing Approach	WB			EB	
Opposing Lanes	1			1	0
Conflicting Approach Left				NB	EB
Conflicting Lanes Left	0			2	1
Conflicting Approach Right	NB				WB
Conflicting Lanes Right	2			0	1
HCM Control Delay	227.4			178.7	24.4
HCM LOS	F			F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	307	689	634
LT Vol	108	0	0	0
Through Vol	0	0	689	634
RT Vol	0	307	0	0
Lane Flow Rate	123	349	783	720
Geometry Grp	7	7	2	2
Degree of Util (X)	0.289	0.693	1.436	1.318
Departure Headway (Hd)	9.521	8.146	7.093	7.216
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	380	447	517	512
Service Time	7.221	5.846	5.093	5.216
HCM Lane V/C Ratio	0.324	0.781	1.515	1.406
HCM Control Delay	16	27.3	227.4	178.7
HCM Lane LOS	C	D	F	F
HCM 95th-tile Q	1.2	5.2	35.4	28.5

6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	35.7	0.0	1007.0	202.0	346.2
Total Del/Veh (s)	773.4	7.5	0.4	629.3	204.0

7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	17.9	634.9	291.0
Total Del/Veh (s)	49.1	17.8	183.7	83.8

8: NB OFF RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	304.6	118.8
Total Del/Veh (s)	33.9	45.3	58.2	46.2

9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	104.2	0.0	36.6
Total Del/Veh (s)	148.1	2.7	52.6

10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	17.2	10.8	13.5
Total Del/Veh (s)	31.3	29.3	30.1

11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32) Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	20.2	22.4	21.5
Total Del/Veh (s)	106.7	13.6	52.8

12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	594.5	364.9
Total Del/Veh (s)	2.4	17.0	10.0

Total Zone Performance

Denied Del/Veh (s)	533.2
Total Del/Veh (s)	1128.0

Intersection: 6: COMMERCE LN/COUNTY ROAD HH & NEWVILLE ROAD (SR 32)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LT	LTR
Maximum Queue (ft)	55	2174	141	106	26	860
Average Queue (ft)	10	1068	70	43	10	458
95th Queue (ft)	47	3120	118	78	33	1238
Link Distance (ft)		3858		293		1168
Upstream Blk Time (%)		8			2	17
Queuing Penalty (veh)		0			0	0
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	0	75	0	0	2	
Queuing Penalty (veh)	0	10	1	0	11	

Intersection: 7: NEWVILLE ROAD (SR 32) & SB I-5 OFF RAMP

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	134	196	667
Average Queue (ft)	100	121	593
95th Queue (ft)	180	212	824
Link Distance (ft)	120	186	622
Upstream Blk Time (%)	46	2	81
Queuing Penalty (veh)	244	9	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: NB OFF RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB	NB	NB
Directions Served	T	T	L	R
Maximum Queue (ft)	163	201	194	377
Average Queue (ft)	122	190	103	213
95th Queue (ft)	272	198	212	589
Link Distance (ft)	206	187		649
Upstream Blk Time (%)	14	37		21
Queuing Penalty (veh)	101	288		0
Storage Bay Dist (ft)			200	
Storage Blk Time (%)			22	1
Queuing Penalty (veh)			88	1

Intersection: 9: EB-SB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	EB
Directions Served	T	R
Maximum Queue (ft)	300	290
Average Queue (ft)	271	239
95th Queue (ft)	378	451
Link Distance (ft)	293	293
Upstream Blk Time (%)	54	72
Queuing Penalty (veh)	194	258
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: NEWVILLE ROAD (SR 32) & WB-SB ON RAMP

Movement	EB	WB
Directions Served	T	TR
Maximum Queue (ft)	196	282
Average Queue (ft)	133	153
95th Queue (ft)	274	548
Link Distance (ft)	186	574
Upstream Blk Time (%)	25	23
Queuing Penalty (veh)	229	230
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: EB-NB ON RAMP & NEWVILLE ROAD (SR 32)

Movement	EB	WB
Directions Served	TR	T
Maximum Queue (ft)	580	79
Average Queue (ft)	423	48
95th Queue (ft)	833	192
Link Distance (ft)	574	206
Upstream Blk Time (%)	36	23
Queuing Penalty (veh)	320	227
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: NEWVILLE ROAD (SR 32) & WB-NB ON RAMP

Movement	WB	WB
Directions Served	T	R
Maximum Queue (ft)	157	90
Average Queue (ft)	120	10
95th Queue (ft)	152	64
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2211

Intersection	
Intersection Delay, s/veh	70
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	179	27	481	257	129	35	9	426	111	10	15
Future Vol, veh/h	13	179	27	481	257	129	35	9	426	111	10	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	6	16	2	3	7	2	16	5	2	2
Mvmt Flow	14	195	29	523	279	140	38	10	463	121	11	16
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	20	102.6	48.3	17.7
HCM LOS	C	F	E	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	80%	0%	100%	0%	100%	0%	82%
Vol Thru, %	20%	0%	0%	87%	0%	67%	7%
Vol Right, %	0%	100%	0%	13%	0%	33%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	426	13	206	481	386	136
LT Vol	35	0	13	0	481	0	111
Through Vol	9	0	0	179	0	257	10
RT Vol	0	426	0	27	0	129	15
Lane Flow Rate	48	463	14	224	523	420	148
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.111	0.926	0.035	0.523	1.234	0.873	0.37
Departure Headway (Hd)	8.754	7.537	9.288	8.672	8.496	7.492	9.317
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	412	486	388	419	429	487	389
Service Time	6.454	5.237	6.988	6.372	6.213	5.21	7.317
HCM Lane V/C Ratio	0.117	0.953	0.036	0.535	1.219	0.862	0.38
HCM Control Delay	12.5	52	12.3	20.5	150.5	43	17.7
HCM Lane LOS	B	F	B	C	F	E	C
HCM 95th-tile Q	0.4	10.9	0.1	2.9	21.5	9.3	1.7

Intersection	
Intersection Delay, s/veh	163.9
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	531	663	0	367	217
Future Vol, veh/h	0	531	663	0	367	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	8	8	10	5	16
Mvmt Flow	0	577	721	0	399	236
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	116.9	221	141.9
HCM LOS	F	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	63%
Vol Thru, %	100%	100%	0%
Vol Right, %	0%	0%	37%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	531	663	584
LT Vol	0	0	367
Through Vol	531	663	0
RT Vol	0	0	217
Lane Flow Rate	577	721	635
Geometry Grp	1	1	1
Degree of Util (X)	1.144	1.413	1.219
Departure Headway (Hd)	8.358	7.994	7.776
Convergence, Y/N	Yes	Yes	Yes
Cap	439	461	470
Service Time	6.358	5.994	5.776
HCM Lane V/C Ratio	1.314	1.564	1.351
HCM Control Delay	116.9	221	141.9
HCM Lane LOS	F	F	F
HCM 95th-tile Q	18	31	22.2

Intersection	
Intersection Delay, s/veh	212.5
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	743	0	0	778	210	404
Future Vol, veh/h	743	0	0	778	210	404
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	2	3	20	2
Mvmt Flow	808	0	0	846	228	439
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	269.1	298.1	35.7
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	404	743	778
LT Vol	210	0	0	0
Through Vol	0	0	743	778
RT Vol	0	404	0	0
Lane Flow Rate	228	439	808	846
Geometry Grp	7	7	2	2
Degree of Util (X)	0.535	0.845	1.528	1.596
Departure Headway (Hd)	9.843	8.265	7.78	7.676
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	370	444	476	482
Service Time	7.543	5.965	5.78	5.676
HCM Lane V/C Ratio	0.616	0.989	1.697	1.755
HCM Control Delay	23.3	42.1	269.1	298.1
HCM Lane LOS	C	E	F	F
HCM 95th-tile Q	3	8.3	37.6	41.7