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Los Banos Unified School District

Early Learning Center Project

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Los Banos Unified School District

Early Learning Center Project

Air Quality & Greenhouse Gas Impact Analysis

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR

LOS BANOS UNIFIED SCHOOL DISTRICT TRANSITIONAL KINDERGARTEN PROJECT

LOS BANOS, CA

JANUARY 2024

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AAM	Annual Arithmetic Mean
AHERA	Asbestos Hazard Emergency Response Act
ATCM	Airborne Toxic Control Measure
CAAQS	California Ambient Air Quality Standards
ARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for HAPs
NO_x	Oxides of Nitrogen
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter (less than 10 μm)
$PM_{2.5}$	Particulate Matter (less than 2.5 μm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
$\mu g/m^3$	Micrograms per cubic meter
U.S. EPA	United State Environmental Protection Agency

INTRODUCTION

This report describes the existing environment in the project vicinity and identifies potential air quality and greenhouse gas impacts associated with the proposed Los Banos District Transitional Kindergarten Project (project). Project impacts are evaluated relative to applicable thresholds of significance. This report also provides a summary of existing conditions in the project area as well as the applicable regulatory framework pertaining to air quality and climate change.

PROPOSED PROJECT SUMMARY

The Proposed project site is located on an approximately 28.3-acre site (Assessor's Parcel Numbers [APNs] (428-030-022) and located in the city of Los Banos within Merced County California. The site consists of vacant undeveloped land, located to the south of the project site is the Los Banos Junior High School campus. The area surrounding the project site consists of existing residential homes. The proposed Los Banos District Transitional Kindergarten is approximately 4.58 acres in size.

The Project includes the construction and operation of a transitional kindergarten (TK) with 19 classrooms to serve 300 students for the Los Banos Unified School District (LBUSD). 15 of these classrooms will be used for TK students and four will be used for Pre-K students. The proposed classrooms would be located along the southern project boundary. The project would include several outdoor play areas, 2 shared workout rooms, onsite drainage ditches and an onsite trash enclosure. Additionally, the project includes landscaping features, and new concrete paved areas. The project's vicinity is depicted in Figure 1. The project's location is depicted in Figure 2. The Projects site plan is depicted in Figure 3.

The proposed project would also include the construction of a staff parking lot including a bus drop-off/loading area and a parent/visitor parking lot with a drop-off area. The entrance to the parent/visitor lot will be accessible from East B Street, parent/visitor traffic must exit on Place Road, limited to right turn (southbound) movements.

If approved, project construction would begin in summer 2024 and anticipated to be completed and operational by Fall 2025.

AIR QUALITY

EXISTING SETTING

The project is located within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air quality in the SJVAB is influenced by a variety of factors, including topography, local and regional meteorology. Factors affecting regional and local air quality are discussed below.

TOPOGRAPHY, METEOROLOGY, AND POLLUTANT DISPERSION

The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB occupies the southern half of the Central Valley. The SJVAB is open to the north and is surrounded by mountain ranges on all other sides. The Coast Ranges, which have an average elevation of 3,000 feet, are along the western boundary of the SJVAB, while the Sierra Nevada Mountains (8,000 to 14,000 feet in elevation) are along the eastern border. The San Emigdio Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, form the southern boundary, and have an elevation of 6,000 to 8,000 feet. The SJVAB is mostly flat with a downward gradient in terrain to the northwest.

Meteorology and Climate

The SJVAB has an inland Mediterranean climate that is strongly influenced by the presence of mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes producing a partial rain shadow over the valley. In addition, the mountain ranges block the free circulation of air to the east, trapping stable air in the valley for extended periods during the cooler half of the year.

Winter in the SJVAB is characterized as mild and fairly humid, while the summer is typically hot, dry, and cloudless. The climate is a result of the topography and the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer months, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

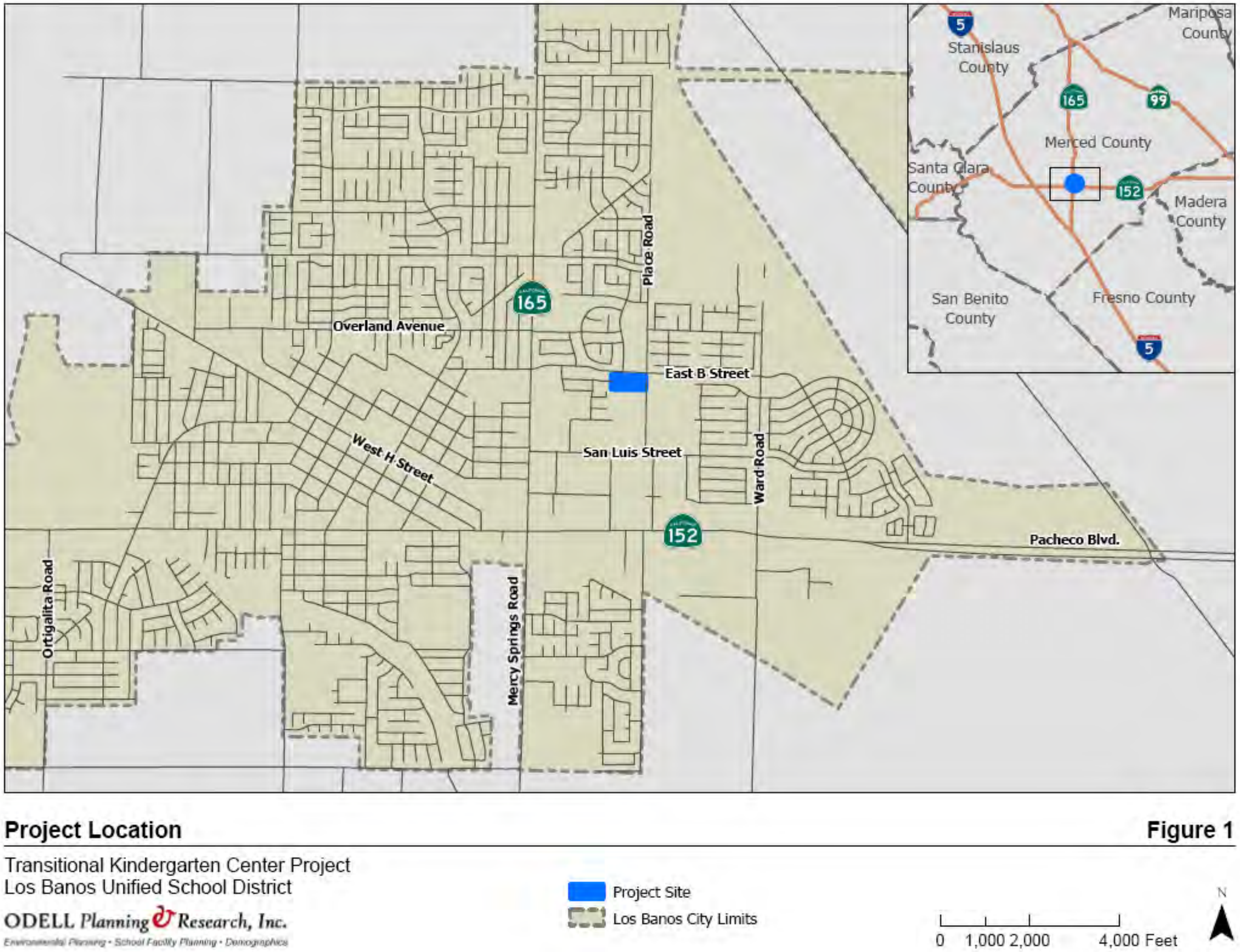
The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the SJVAB and the strength and location of the semi-permanent, subtropical high-pressure cell. Summer temperatures that often exceed 100 degrees Fahrenheit (°F) and clear sky conditions are favorable to ozone formation. Most of the precipitation in the valley occurs as rainfall during winter storms. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions, which can result in higher pollutant concentrations. The orientation of the wind flow pattern in the SJVAB is parallel to the valley and mountain ranges. Summer wind conditions promote the transport of ozone and precursors from the San Francisco Bay Area through the Carquinez Strait, a gap in the Coast Ranges, and low mountain passes such as Altamont Pass and Pacheco Pass. During the summer, predominant wind direction is from the northwest. During the winter, the predominant wind direction is from the southeast. Calm conditions are also predominant during the winter (ARB 1992).

The climate in the project area is semi-arid, with an annual normal precipitation of approximately 12.21 inches. Temperatures in the project area range from an average minimum of approximately 36 degrees Fahrenheit (°F), in January, to an average maximum of 97°F, in July (WRCC 2017).

Atmospheric Stability and Inversions

Stability describes the resistance of the atmosphere to vertical motion. The stability of the atmosphere is dependent on the vertical distribution of temperature with height. Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions often occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large fluctuations in horizontal wind direction occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere travels downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the categories from A to F.

Figure 1.
Project Vicinity

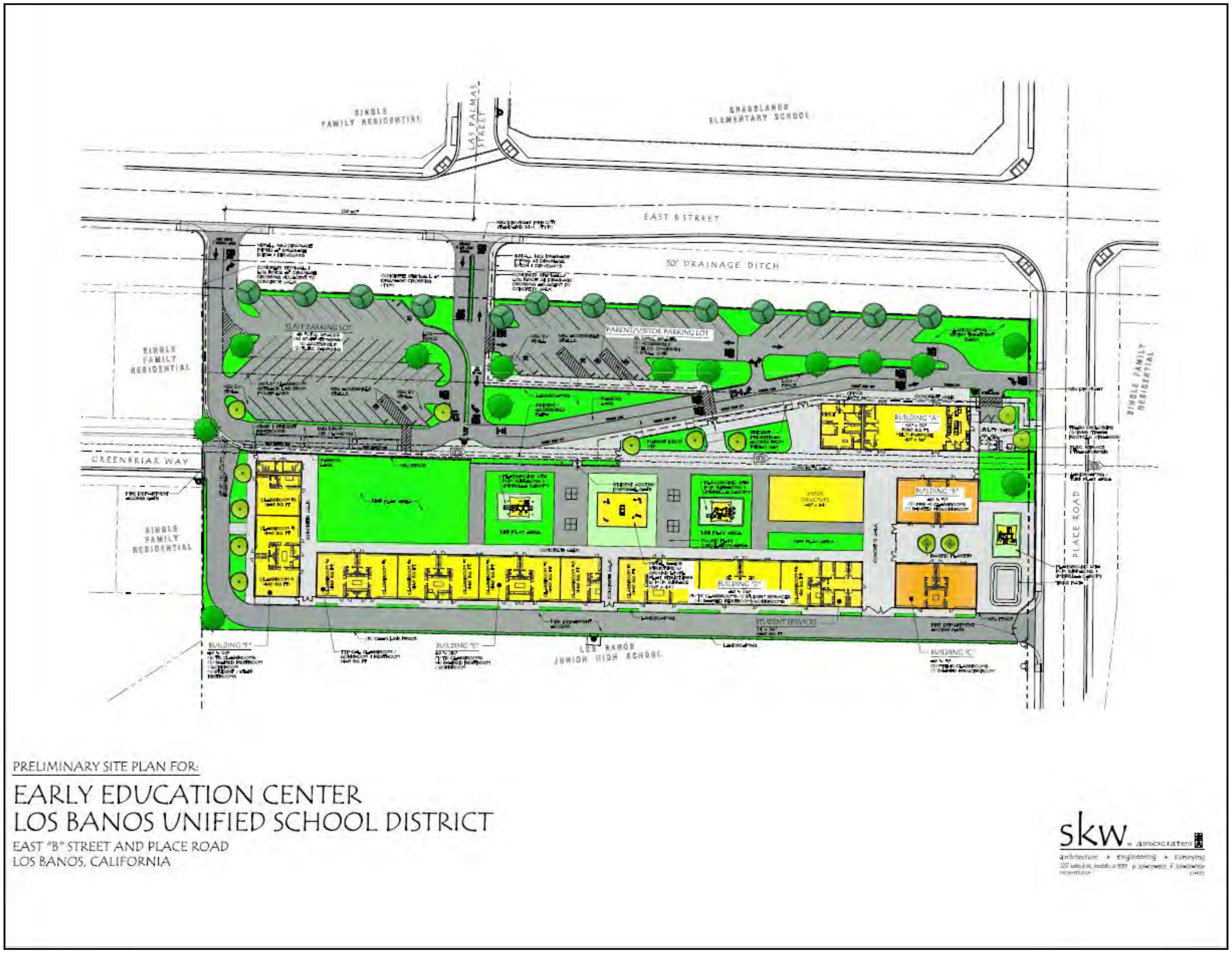


Project Location **Figure 1**

Transitional Kindergarten Center Project
Los Banos Unified School District
ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Figure 2.
Project Location

Figure 3.
Project Site Plan



An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SJVAB experiences both surface-based and elevated inversions. The shallow surface-based inversions are present in the morning but are often broken by daytime heating of the air layers near the ground. The deep elevated inversions occur less frequently than the surface-based inversions but generally result in more severe stagnation. The surface-based inversions occur more frequently in the fall, and the stronger elevated inversions usually occur during December and January.

AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Reactive Organic Gas (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment. Total Organic Gases (TOGs) include all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and VOC are subsets of TOG.

Volatile Organic Compounds (VOC) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and may also be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen (NO_X) are a family of gaseous nitrogen compounds and is a precursor to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. U.S. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. U.S. EPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5}$- PM_{10})," such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossils fuels, meat, wood and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Numerous scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and also acute (short-term) bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short term exposures, although they may experience temporary minor irritation when particle levels are elevated.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO is on-road motor vehicles. Other CO sources include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Because of the local nature of CO problems, the California Air Resources Board (ARB) and U.S. EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NO_X, suspended SO_X particles contribute to the poor visibility. These SO_X particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically.

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). OSHA regulates workplace exposure to H_2S.

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The ARB has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO_4^{2-}) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilator function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (C_2H_3Cl or VCM) is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Odors

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

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

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The SJVAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to SJVAPCD *Rule 4102, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the SJVAPCD.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA) and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with SJVAPCD rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2013).

In October 2000, the ARB issued a report entitled: *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRPP will significantly reduce emissions from both old and new diesel fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013). In comparison to year 2010 inventory of statewide DPM emissions, ARB estimates that emissions of

DPM in 2035 will be reduced by more than 50 percent. DPM is typically composed of carbon particles ("soot", also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x). NO_x emissions from diesel engines are important because they can undergo chemical reactions in the atmosphere leading to formation of $PM_{2.5}$ and ozone (ARB, 2016d).

In California, diesel exhaust particles have been identified as a carcinogen accounting for an estimated 70% of the total known cancer risks in California. DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over an estimated 70-year lifetime. Non-cancer health effects associated with exposure to DPM include premature death, exacerbated chronic heart and lung disease, including asthma, and decreased lung function in children. Short-term exposure to diesel exhaust can also 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 (ARB, 2016d).

Individuals most vulnerable to non-cancer health effects of DPM are children whose lungs are still developing and the elderly who often have chronic health problems. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to DPM (ARB, 2016d). In addition to its health effects, DPM significantly contributes to haze and reduced visibility. DPM also plays an important role in climate change. As noted above, a large proportion of DPM is composed of BC. Recent studies cited in the Intergovernmental Panel on Climate Change report estimate that emissions of BC are the second largest contributor to global warming, second only to emissions of carbon dioxide (ARB, 2016d). (Refer to the Greenhouse Gas section of this report for additional discussion of BC and climate change.)

Acetaldehyde is a federal hazardous air pollutant. The ARB identified acetaldehyde as a TAC in April 1993. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. A majority of the statewide acetaldehyde emissions can be attributed to mobile sources, including on-road motor vehicles, construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area sources of emissions include the burning of wood in residential fireplaces and wood stoves. The primary stationary sources of acetaldehyde are from fuel combustion from the petroleum industry (ARB 2013).

Acute exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic intoxication of acetaldehyde resemble those of alcoholism. The U.S. EPA has classified acetaldehyde as a probable human carcinogen. In California, acetaldehyde was classified on April 1, 1988, as a chemical known to the state to cause cancer (U.S. EPA 2014; ARB 2013).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 88 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products. The primary area sources include residential combustion of various types such as cooking and water heating (ARB 2013).

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as known human carcinogen for all routes of exposure (U.S. EPA 2014).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2013).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risk (ARB 2013).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent chromium was identified as a TAC in 1986. Sources of Hexavalent chromium include industrial metal finishing processes, such as chrome plating and chromic acid anodizing, and firebrick lining of glass furnaces. Other sources include mobile sources, including gasoline motor vehicles, trains, and ships (ARB 2013). The respiratory tract is the major target organ for hexavalent chromium toxicity, for acute and chronic inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to hexavalent chromium, while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled hexavalent chromium is a human carcinogen, resulting in an increased risk of lung cancer. In California, hexavalent chromium has been identified as a carcinogen.

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions (ARB 2013).

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. The U.S. EPA has classified para-dichlorobenzene as a possible human carcinogen.

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2013).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen.

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2013).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a carcinogen.

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2013).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a carcinogen.

ASBESTOS

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900's; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos containing products.

Naturally occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings. All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

VALLEY FEVER

Valley fever is an infection caused by the fungus Coccidioides. The scientific name for valley fever is “coccidioidomycosis,” and it’s also sometimes called “desert rheumatism.” The term “valley fever” usually refers to Coccidioides infection in the lungs, but the infection can spread to other parts of the body in severe cases. Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk for developing valley fever. After the spores enter the lungs, the person’s body temperature allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection. Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

Approximately 5 to 10 percent of people who get valley fever will develop serious or long-term problems in their lungs. In an even smaller percent of people (about 1 percent), the infection spreads from the lungs to other parts of the body, such as the central nervous system (brain and spinal cord), skin, or bones and joints. Certain groups of people may be at higher risk for developing the severe forms of valley fever, such as people who have weakened immune systems. The fungus that causes valley fever, Coccidioides, can’t spread from the lungs between people or between people and animals. However, in extremely rare instances, a wound infection with Coccidioides can spread valley fever to someone else, or the infection can be spread through an organ transplant with an infected organ.

For many people, the symptoms of valley fever will go away within a few months without any treatment. Healthcare providers choose to prescribe antifungal medication for some people to try to reduce the severity of symptoms or prevent the infection from getting worse. Antifungal medication is typically given to people who are at higher risk for developing severe valley fever. The treatment typically occurs over a period of roughly 3 to 6 months. In some instances, longer treatment may be required. If valley fever develops into meningitis life-long antifungal treatment is typically necessary.

Scientists continue to study how weather and climate patterns affect the habitat of the fungus that causes valley fever. Coccidioides is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. For example, hot and dry weather conditions have been shown to correlate with an increase in the number of valley fever cases in Arizona and in California. The ways in which climate change may be affecting the number of valley fever infections, as well as the geographic range of Coccidioides, isn’t known yet, but is a subject for further research (CDC 2016).

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in the SJVAB. The Merced-S Coffee Avenue and the Merced-2334 M Street monitoring stations are the closest representative monitoring stations to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. The Merced-S Coffee Avenue monitoring station monitors ambient concentrations of ozone, NO_2, and $PM_{2.5}$. Measured concentrations of PM_{10} were obtained from the Merced-2334 M Street monitoring station. Ambient monitoring data were obtained for the last three years of available measurement data (i.e., 2020 through 2022) and are summarized in Table 1. As depicted, the state and federal ozone, $PM_{2.5}$, and state PM_{10} standards were exceeded on numerous occasions during the past three years.

Table 1.
Summary of Ambient Air Quality Monitoring Data

Pollutant	Monitoring Year		
	2020	2021	2022
Ozone(1)			
Maximum concentration (1-hour/8-hour average)	0.100/0.088	0.099/0.090	0.096/0.083
Number of days state/national 1-hour standard exceeded	2/0	2/0	2/0
Number of days national 2008/2015 8-hour standard exceeded	5/20	7/21	2/9
Nitrogen Dioxide (NO_2)(1)			
Maximum concentration (1-hour average)	38.5	38.2	39.1
Annual average	6	NA	7
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter ($PM_{2.5}$)(2)			
Maximum concentration	86.0	72.9	43.7
Annual Average (national/state)	15.5/15.5	11/11.1	10.4/10.5
Number of days national standard exceeded (measured/calculated)(3)	9/27.7	14/14.3	4/4.1
Suspended Particulate Matter (PM_{10})(2)			
Maximum concentration (national/state)	210.7/209.9	86.9/85.8	46.4/100.5
Number of days state standard exceeded (measured/calculated)(3)	13/NA	10/NA	60/NA
Number of days national standard exceeded (measured/calculated)(3)	1/5.8	0/NA	0/NA

ppm = parts per million by volume, µg/m^3 = micrograms per cubic meter, NA=Not Available
1. *Based on ambient concentrations obtained from the Merced- S Coffee Avenue Monitoring Station.*
2. *Based on ambient concentrations obtained from the Merced- 2334 M Street Monitoring Station.*
3. *Measured days are those days that an actual measurement was greater than the standard. Calculated days are estimated days that a measurement would have exceeded the standard had measurements been collected every day.*

Source: ARB 2023

AIR QUALITY INDEX

The health effects of ambient air pollutant concentrations can be evaluated and presented in various ways. The most common method is the use of the Air Quality Index (AQI). The U.S. EPA developed the AQI as an easy-to-understand measure of health impacts based on measured ambient air quality in comparison to established ambient air quality standards. Tables 2 and 3 present a summary of the health impacts for ozone and fine particulate matter ($PM_{2.5}$), respectively, based on the U.S. EPA's AQI.

Table 2. Air Quality Index Summary for Ozone & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Ozone Concentrations: 55-70 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Unusually sensitive individuals may experience respiratory symptoms. Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Ozone Concentrations: 71-85 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200: Unhealthy Ambient Ozone Concentrations: 86-105 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201-300: Very Unhealthy Ambient Ozone Concentrations: 106-200 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid outdoor exertion; everyone else, especially children, should limit outdoor exertion.

An AQI of 50 and below is categorized as "Good" and air quality is satisfactory, and poses little or no risk. An AQI of 301 or higher is categorized as "Hazardous" having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals.
AQI = Air quality index, ppb = parts per billion
Source: U.S. EPA 2023a

A summary of the annual air quality index for the project area, based on monitoring data obtained from the Merced County monitoring area for the last three years of available data, is provided in Table 4. As depicted in Table 4, the project area typically experiences "good" air quality with the total number of days ranging from 168 to 184 days per year. Days classified as "moderate" AQI ranged from 163 to 184 days per year. Days classified as "Unhealthy for Sensitive Groups" AQI ranged from 13 to 31 days per year. Over the last three years of available data, the area has experienced a total of 17 days classified as "Unhealthy", no days classified as "Very Unhealthy" or "Hazardous". (U.S. EPA 2022).

Table 3. Air Quality Index Summary for Fine Particulate Matter & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Concentrations: 12.1-35.4 µg/m³	Sensitive Groups: Some people who may be unusually sensitive to particulate. Health Effects Statements: Unusually sensitive people should consider reducing prolonged or heavy exertion. Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Concentrations: 35.5-55.4 µg/m³	Sensitive Groups: People with heart or lung disease, older adults, children, and teenagers. Health Effects Statements: Increasing likelihood of respiratory symptoms for sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly. Cautionary Statements: If you have heart disease: Symptoms such as palpations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact a health care provider.
AQI 151–200: Unhealthy Ambient Concentrations: 55.5-150.4 µg/m³	Sensitive Groups: Everyone. Health Effects Statements: Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; increased respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201-300: Very Unhealthy Ambient Concentrations: 150.5-250.4 µg/m³	Sensitive Groups: Everyone. Health Effects Statements: Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; significant increase in respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or reschedule to a time when air quality is better.

An AQI of 50 and below is categorized as "Good" and air quality is satisfactory and poses little or no risk. An AQI of 301 or higher is categorized as "Hazardous" having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals.
AQI = Air quality index, µg/m3 = micrograms per cubic meter
Source: U.S. EPA 2023a

Table 4. Air Quality Index Annual Historical Summary for Merced County

Year	Air Quality Index (AQI) - Number of Days					
	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy	Hazardous
2022	168	184	13	0	0	0
2021	184	148	31	2	0	0
2020	171	163	17	15	0	0

Represents overall air quality taking into account all criteria pollutants measured.
Source: U.S, EPA 2023b

REGULATORY FRAMEWORK

Air quality within the SJVAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the SJVAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS), and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 5.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) first authorized the U.S. EPA to regulate asbestos in schools and Public and Commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies (LEAs) to inspect their schools for ACBM and prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

Asbestos School Hazard Abatement and Reauthorization Act

The Asbestos School Hazard Abatement and Reauthorization Act (ASHARA) reauthorized AHERA and made some minor changes in the Act. It also reauthorized the Asbestos School Hazard Abatement Act.

Asbestos School Hazard Abatement Act

The Asbestos School Hazard Abatement Act (ASHAA) of 1984 provided loans and grants to help financially needy public and private schools correct serious asbestos hazards. This program was funded from 1985 until 1993. There have been no funds appropriated since that date.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 5. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

Table 5.
Summary of Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards (Primary)
Ozone (O_3)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	AAM	20 µg/m³	–
	24-hour	50 µg/m³	150 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m³	12 µg/m³
	24-hour	No Standard	35 µg/m³
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	53 ppb
	1-hour	0.18 ppm	100 ppb
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	–
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m³	–
	Calendar Quarter	–	1.5 µg/m³
	Rolling 3-Month Average	–	0.15 µg/m³
Sulfates	24-hour	25 µg/m³	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m³)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m³)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	

** For more information on standards visit : https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
Source: ARB 2019

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

Assembly Bill 203 – Valley Fever

Assembly Bill (AB) 203 addresses Valley Fever caused by Coccidioides immitis fungus found in soil. It applies to construction employers in highly endemic counties, where soil disturbance activities can release airborne spores. The legislation mandates annual awareness training for employees on Valley Fever risks, prevention methods, and symptom recognition. Employers must conduct the training before work involving substantial dust disturbance and may use existing materials from federal, state, or local agencies for training.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating Government Code Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

Regulations Related to Schools

The State of California has adopted various regulations and programs intended to reduce exposure of children to air pollutant concentrations, including the following:

Toxic Emissions Near Schools Program (AB 3205/SB 352)

Assembly Bill (AB) 3205 (Health and Safety Code Sections 42301.6–42301.9) addresses stationary sources of TACs near schools. It also requires public notice to the parents or guardians of children enrolled in any school located within one-quarter mile of the source and to each address within a 1,000-foot radius of a TAC source. Senate Bill (SB) 352 (Education Code Section 17213, Public Resources Code Section 21151.8) expands previous requirements to review sources of TACs near school sites. SB 352 directs school districts to include in the school site analysis any emissions sources, including, but not limited to, freeways and other busy traffic corridors, large agricultural operations, and rail yards within one-quarter mile of a school site. SB 352 requires that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential health risks.

California Air Resources Board's Truck and Bus Regulation

This regulation requires fleets that operate in California to reduce diesel truck and bus emissions by retrofitting or replacing existing engines. Amendments were adopted in December 2010 to provide more time for fleets to comply. The amended regulation required installation of PM retrofits beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, nearly all vehicles 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 privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation has provisions to provide extra credit for PM filters installed prior to July 2011, has delayed requirements for fleets with 3 or fewer vehicles, provisions for agricultural vehicles and other situations.

Lower-Emission School Bus Program 2007

Proposition 1B, which was approved by the voters on November 7th, 2006, enacts the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. This bond act authorizes $200 million for replacing and retrofitting school buses. The primary goal of the ARB's Lower-Emission School Bus Program is to reduce school children's exposure to both cancer-causing and smog-forming pollution. The program provides grant funding for new, safer school buses and to put air pollution control equipment (i.e., retrofit devices) on buses that are already on the road.

Airborne Toxic Control Measure to Limit School Bus Idling at Schools

ARB has approved an airborne toxic control measure (ATCM) that limits school bus idling and idling at or near schools to only when necessary for safety or operational concerns. The ATCM requires a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or other commercial motor vehicle is prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns is exempt from these restrictions. In addition, the ATCM requires a motor carrier of an affected bus or vehicle to ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep records of these driver education and tracking activities. This ATCM became effective in July 2003.

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting, and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA.

The SJVAPCD prepared the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) to assist lead agencies and project applicants in assessing potential air quality impacts of projects in the SJVAB. The GAMAQI provides guidance on evaluating both construction and operational air emissions. GAMAQI established criteria and thresholds for determining project impacts, procedures for quantifying and analyzing air quality impacts and mitigation methods.

Air Quality Plans

The SJVAPCD is responsible for drafting and implementing the Air Quality Management Plan for the basin. With the goal of bringing the area into compliance with federal and state air quality standards. The SJVAPCD addresses each criteria pollutant with its own AQMP.

The SJVAPCD has the following AQMPs:

- 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards
- 2016 Moderate Area Plan for the 2012 PM2.5 Standard

- 2016 Plan for the 2008 8-Hour Ozone Standard
- 2013 Plan for the Revoked 1-Hour Ozone Standard
- 2007 PM10 Maintenance Plan
- 2004 Revision to the California State Implementation Plan for Carbon Monoxide

The SJVAPCD's current air quality plans are discussed below.

Ozone Plans:

The district adopted the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-hour Ozone Standard on June 15th, 2023. The SJVACD is the only region in the nation designated as an extreme nonattainment for an ozone standard to attain the 1-hour ozone NAAQS. This maintenance plan was adopted to prevent backsliding and ensure the area remains in attainment.

The district adopted the 2022 Plan for the 2015 8-Hour Ozone Standard on December 15th, 2022. This plan serves to build on comprehensive strategies already in place in order to guide the valley toward attainment of the 2015 8-hour ozone standard. The 2022 Ozone Plan includes a number of measures to help reduce stationary source emissions.

Particulate Matter Plans:

On June 19th, 2003, the governing board of the San Joaquin Valley Unified Air Pollution Control District adopted the 2003 PM_{10} Plan. This plan presented the districts strategy for attaining the NAAQS for PM_{10} in the San Joaquin Valley Nonattainment Area by December 31st, 2010.

The district adopted the 2007 PM_{10} Maintenance Plan in September 2007, with the goal of ensuring continued attainment of the USEPA's PM_{10} standard assure.

The 2008 $PM_{2.5}$ Plan improved upon reduction strategies adopted in the 2007 Ozone Plan to bring the Basin into attainment of the 1997 PM_{10} national standards. PM_{10} can be directly emitted into the atmosphere or form as a result of chemical reactions among precursors. The 2008 $PM_{2.5}$ Plan seeks to reduce emissions of these precursors throughout the Valley.

The 2012 $PM_{2.5}$ Plan aims to bring the San Joaquin Valley into attainment of the USEPA's 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. This plan builds off framework of the 2007 Ozone Plan and 2008 $PM_{2.5}$ Plan to reach attainment of the newest federal standard for fine particulate matter $PM_{2.5}$. The 2012 $PM_{2.5}$ Plan involves both Valley businesses and residents making the efforts necessary to achieve clean air in the Valley.

On November 15th, 2018, the district adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards. This plan aims to help guide the region in attaining the federal health based 1997, 2006 and 2012 NAAQS for $PM_{2.5}$. This plan includes measures to reduce emissions from mobile stationery and area sources.

Rules and Regulations

The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following (SJVAPCD 2023c):

- *Regulation VIII (Fugitive Dust Prohibitions). Regulation VIII (Rules 8011-8081).* This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4002 (National Emissions Standards for Hazardous Air Pollutants).* This rule may apply to projects in which portions of an existing building would be renovated, partially demolished or removed. With regard to asbestos, the NESHAP specifies work practices to be followed during renovation, demolition or other abatement activities when friable asbestos is involved. Prior to demolition activity, an asbestos survey of the existing structure may be required to identify the presence of any asbestos containing building materials (ACBM). Removal of identified ACBM must be removed by a certified asbestos contractor in accordance with CAL-OSHA requirements.

- *Rule 4102 (Nuisance).* Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4103 (Open Burning).* This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes.
- *Rule 4601 (Architectural Coatings).* Limits volatile organic compounds from architectural coatings.
- *Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).* This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.
- *Rule 9510 (Indirect Source Review - ISR).* Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NOx; (2) 45-percent reduction of construction equipment exhaust PM_{10}; (3) 33-percent reduction of operational NOx over 10 years; and (4) 50-percent reduction of operational PM_{10} over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

Regulatory Attainment Designations

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

The U.S. EPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 6. The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2023b).

Table 6.
SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment
For more information visit website URL: https://www.valleyair.org/aqinfo/attainment.htm. Source: SJVAPCD 2023a		

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are beside the western border of the proposed project site. Residential dwellings are also located east of the project across Place Road. Los Banos Junior High School is located south of the project site.

IMPACTS & MITIGATION MEASURES

METHODOLOGY

Short-term Impacts

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.21 computer program. Emissions were quantified for site preparation, grading, building construction, paving and architectural coating. Demolition activities would not be required for this project. Construction is anticipated to occur over 18 months beginning in 2024 and finishing in 2025. Additional construction information such as cubic yards of soil needed to be imported/exported, haul truck trips, worker vehicle trips, and equipment load factors were not available and based on default parameters contained within the model. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Impacts

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.21 computer program. Emissions were quantified for mobile sources, area sources, energy use, water use, waste generation and refrigerant emissions. Operational emissions were evaluated based on proposed land uses to be developed and traffic generation rates derived from the traffic analysis prepared for the project (JLB 2023). All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model. Due to anticipated reductions in future fleet-average mobile-source and energy emission rates, emissions for post-year 2026 operational conditions would be less. Modeling assumptions and output files are included in Appendix A of this report. Localized air quality impacts, including toxic air contaminants, fugitive dust, mobile-source CO, and odors were qualitatively assessed.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

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

c) Expose sensitive receptors to substantial pollutant concentrations.

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

To assist local jurisdictions in the evaluation of air quality impacts, the SJVAPCD has published the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant regional or local air quality impact and related public-health concerns. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 TPY of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.
- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality conditions. Accordingly, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if emissions of ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, or SO_2 associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the pollutants evaluated (SJVAPCD 2015). It is important to note that the SJVAPCD's recommended thresholds of significance were developed taking into account the achievement and maintenance of applicable ambient air quality standards (refer to Table 1). As previously noted, these standards represent the upper limits deemed necessary to adequately protect public health and welfare. Potential health-related impacts for criteria air pollutants are discussed earlier in this report and summarized in Table 2. Therefore, projects that do not exceed SJVAPCD's recommended significance thresholds would also be considered to have a less-than-significant impact with regard to potential health-related impacts.

PROJECT IMPACTS

Impact AQ-A.	*Would the project conflict with or obstruct implementation of the applicable air quality plan?*

In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact.

As noted in Impact AQ-B, short-term construction and long-term operational emissions would not exceed applicable SJVAPCD-recommended significance thresholds. However, as noted in Impact AQ-C, the proposed project could result in a significant contribution to localized PM concentrations for which the SJVAB is currently designated non-attainment. For this reason, implementation of the proposed project could conflict with air quality attainment or maintenance planning efforts. This impact would be considered *potentially significant.*

Mitigation Measure: Implement Mitigation Measure AQ-1 (refer to Impact AQ-C).

Significance after Mitigation: With implementation of Mitigation Measure AQ-1 this impact would be considered less than significant.

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

The proposed project is located in the City of Los Banos, which is within the SJVAB. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2019). Potential air quality impacts associated with the proposed project could potentially occur during project construction or operational phases. Short-term construction and long-term air quality impacts associated with the proposed project are discussed, as follows:

<u>Short-term Construction Emissions</u>

Short-term increases in emissions would occur during the construction phase. Construction-generated emissions are temporary, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site preparation, grading, building construction, and paving. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_X), CO, and emissions of PM. Emissions of ozone-precursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site grading activities and can result in increased concentrations of PM that can adversely affect nearby sensitive land uses. Estimated construction-generated annual emissions associated with the proposed project are summarized in Table 7.

As noted in Table 7, construction of the proposed project would generate maximum annual emissions of approximately 0.24 tons/year of ROG, 1.62 tons/year of NO_X, 1.70 tons/year of CO, 0.97 tons/year of PM_{10}, and 0.5 tons/year of $PM_{2.5}$. Estimated annual construction-generated emissions would not exceed the

SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, 100 tons/year of CO, 27 tons/year of SOx, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$.

Table 7.
Annual Construction Emissions

Construction	Uncontrolled Maximum Annual Emissions (tons/year) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2024	0.17	1.62	1.63	<0.01	0.97	0.50
Year 2025	0.24	1.30	1.70	<0.01	0.14	0.10
Maximum Annual Emissions:	0.24	1.62	1.70	<0.01	0.97	0.50
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures.
2. Assuming construction would begin in 2024. Future year emissions would be less.
Refer to Appendix A for modeling results and assumptions.

Estimated daily construction emissions are summarized in Table 8. As noted in Table 8, construction of the proposed project would generate maximum daily emissions of approximately 7.40 lbs/day of ROG, 36.0 lbs/day of NO_x, 32.90 lbs/day of CO, 0.13 lbs/day of SO_2, 42.60 lbs/day of PM_{10}, and 23.14 lbs/day of $PM_{2.5}$. Daily construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Short-term construction of the proposed project would not result in a significant impact to regional or local ambient air quality conditions. Furthermore, it is important to note that project construction, including grading activities, would be required to comply with SJVPACD Regulation VIII (Fugitive PM_{10} Prohibitions). Mandatory compliance with SJVAPCD Regulation VIII would further reduce emissions of fugitive dust from the project site and minimize the project's potential to adversely affect nearby sensitive receptors. With compliance with SJVAPCD Regulation VIII, emissions of PM would be further reduced. For these reasons, construction-generated emissions would not be anticipated to result in a substantial increase in localized or regional pollutant concentrations that would have a significant adverse impact to public health. Given that project-generated emissions would not exceed applicable SJVAPCD significance thresholds, this impact would be considered *less than significant*.

Table 8.
Daily On-site Construction Emissions

Construction Phase	Uncontrolled Maximum Daily Emissions (lbs/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	3.65	36.0	32.9	0.05	42.6	23.14
Grading	3.52	34.3	30.2	0.06	21.3	9.96
Building Construction	1.20	11.2	13.10	0.02	1.0	0.92
Paving	0.80	7.45	9.98	0	0.70	0.64
Architectural Coating	5.40	0.88	1.14	0	0.06	0.06
Maximum Daily Emissions:	7.40	36.0	32.90	0.13	42.60	23.14
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. *Based on CalEEMod computer modeling. Totals may not sum due to rounding. To be conservative, estimated emissions do not include fugitive dust control measures per SJVAPCD Regulation VIII.*
2. *Maximum daily emissions were quantified assuming that building construction, paving and architectural coating could take place at the same time.*

Construction would begin in 2024. Future year emissions would be less.
Refer to Appendix A for modeling results and assumptions.

Long-term Operational Emissions

Estimated annual operational emissions for the proposed project are summarized in Table 9. As depicted, the proposed project would result in annual emissions of approximately 0.71 tons/year of ROG, 0.06 tons/year of NO_X, 2.94 tons/year of CO, 0.01 lbs/day of SO_2, 0.88 lbs/day of PM_{10}, and 0.24 lbs/day of $PM_{2.5}$. Estimated annual operational emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, 100 tons/year of CO, 27 tons/year of SO_X, 15 tons/year PM_{10}, or 15 tons/year $PM_{2.5}$.

Table 9.
Annual Operational Emissions

Operational Category	Uncontrolled Annual Emissions (tons/year)[1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile Source	0.55	0.53	2.75	<0.01	0.87	0.23
Area Source[2]	0.16	<0.01	0.13	<0.01	<0.01	<0.01
Natural Gas Use	<0.01	0.07	0.06	<0.01	0.01	0.01
Total:	0.71	0.6	2.94	<0.01	0.88	0.24
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. *Refer to Appendix A for modeling assumptions and results.*
2. *Area source emissions include consumer products, architectural coatings, and landscape equipment.*
3. *Emissions were calculated using the CalEEMod computer program.*

Estimated daily operational emissions are summarized in Table 10. As depicted, the proposed project would result in daily operational emissions of approximately 1.06 lbs/day of ROG, 0.43 lbs/day of NO_X, 1.85 lbs/day of CO, 0.01 lbs/day of SO_2, 0.07 lbs/day of PM_{10}, and $PM_{2.5}$. Operational emissions would be largely associated with mobile sources. Daily operational emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated.

Long-term operation of the proposed project would not result in a significant impact to regional or local ambient air quality conditions. It is important to note that estimated operational emissions are conservatively based on the default vehicle fleet distribution assumptions contained in the model, which include contributions from medium and heavy-duty trucks. Mobile sources associated with schools typically consist largely of light-duty vehicles and buses. As a result, actual mobile-source emissions would likely be less than estimated. Given that project-generated emissions would not exceed applicable SJVAPCD significance thresholds, long-term operational activities would not be projected to violate or contribute substantially to existing or projected non-attainment conditions or associated adverse health impacts. This impact would be considered *less than significant*.

Table 10.
Daily 2026 On-site Operational Emissions

Operational Category	Uncontrolled Daily Emissions (lbs/day) [1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Source[2]	1.04	0.01	1.50	<0.01	<0.01	<0.01
Natural Gas Use	0.02	0.42	0.35	<0.01	0.06	0.06
Total:	1.06	0.43	1.85	<0.01	0.07	0.07
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

1. *Emissions were calculated using the CalEEMod computer program. Does not include implementation of emissions control measures.*
2. *Area source emissions include consumer products, architectural coatings, and landscape equipment.*

Refer to Appendix A for modeling assumptions and results.

Impact AQ-C. Would the project expose sensitive receptors to substantial pollutant concentrations?

As previously noted, the nearest sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are generally located along the western boundary of the project site. Long-term operational and short-term construction activities and emission sources that could adversely impact these nearest sensitive receptors are discussed, as follows:

Long-term Operation

Localized Mobile-Source CO Emissions

Carbon monoxide is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the blood stream and can inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease.

Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. For this reason, modeling of mobile-source CO concentrations is typically recommended for sensitive land uses located near signalized roadway intersections that are projected to operate at unacceptable levels of service (i.e., LOS E or F). Localized CO concentrations associated with the proposed project would be considered less-than-significant impact if: (1) traffic generated by the proposed project would not result in deterioration of a signalized intersection to a LOS of E or F; or (2) the project would not contribute additional traffic to a signalized intersection that already operates at LOS of E or F.

Based on the traffic analysis prepared for this project, the signalized intersection of Mercy Springs Road and East B Street would be projected to operate at LOS F under cumulative year 2044 conditions. However, with implementation of the proposed traffic improvements and recommendations, this intersection would operate at LOS D under future cumulative conditions (JLB 2023). For this reason and given the low background CO concentrations in the project area, the proposed project would not be expected to contribute substantially to localized CO concentrations that would exceed applicable standards. For this reason, this impact would be considered *less than significant*.

Toxic Air Contaminants

Based on information provided by the SJVAPCD, three existing stationary sources of TACS were identified within one-quarter mile of the project site. These sources include a ready-mix concrete facility and two water supply facilities. These facilities are subject to SJVAPCDS permitting requirements. As part of the permitting process, these facilities would be evaluated to ensure that any releases of TACs would not adversely impact nearby sensitive land uses that would exceed SJVAPCD's recommended significance thresholds. Given that these facilities are subject to SJVAPCD permitting requirements, the identified facilities would not result in an increased health risk to onsite students or staff in excess of SJVAPCD's significance thresholds. Implementation of the proposed project would not result in the location of sensitive land uses closer to these facilities. No other major stationary sources were identified within one-quarter mile of the project site. In addition, the project site is not located within 500 feet of a freeway or other busy traffic corridor. Predicted onsite health risks for onsite students and staff are anticipated to be minor and would not be anticipated to exceed the SJVAPCD's significance thresholds. In addition, implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs, nor would project implementation result in a significant increase in diesel-fueled vehicles traveling along area roadways. For these reasons, long-term exposure to TACs would be considered *less than significant*.

Short-term Construction

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered *less than significant*.

Localized PM Concentrations

SJVAPCD Regulation VIII, Fugitive PM10 Prohibitions requires implementation of dust control measures and limits allowable dust emissions. Project construction would result in short-term increases of fugitive dust and diesel-exhaust PM emissions associated predominantly with site preparation, grading, material handling, and vehicle travel on unpaved and paved surfaces. On-site off-road equipment and trucks would also result in short-term emissions of diesel-exhaust PM (DPM) and fugitive dust, which could contribute to elevated localized concentration at nearby receptors. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. Given the duration of potential exposure, construction-generated DPM would not be projected to exceed SJVAPCD's health risk significance thresholds. However, if uncontrolled, emissions of construction-generated PM may result in short-term increases in localized pollutant concentrations, which could contribute to increased occurrences of Valley Fever and potential increases in nuisance impacts to nearby receptors. For these reasons, localized uncontrolled concentrations of construction-generated PM would be considered to have a *potentially-significant* impact.

Mitigation Measure AQ-1: The following measures shall be implemented to reduce potential expose of nearby sensitive receptors to localized concentrations of construction-generated PM:

1. On-road diesel vehicles shall comply with Section 2485 of Title 13 of the California Code of Regulations. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:
    a. Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,
    b. Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.
2. Off-road diesel equipment shall comply with the 5-minute idling restriction identified in Section 2449(d)(2) of the California Air Resources Board's In-Use off-Road Diesel regulation. The specific requirements and exceptions in the regulations can be reviewed at the following web sites: www.arb.ca.gov/msprog/truck-idling/2485.pdf and ww.arb.ca.gov/regact/2007/ordiesl07/frooal.pdf.
3. Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5-minute idling limit.
4. To the extent available, replace fossil-fueled equipment with alternatively-fueled (e.g., natural gas) or electrically-driven equivalents.
5. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours and truck haul routes shall be selected to minimize impacts to nearby residential dwellings.
6. The burning of vegetative material shall be prohibited.
7. The proposed project shall comply with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL:

https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be implemented:

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

b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

d. With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

e. When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

f. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

g. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

h. On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.

i. Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.

j. Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

8. The above measures for the control of construction-generated emissions shall be included on site grading and construction plans.

Significance after Mitigation

Mitigation Measure AQ-1 includes measures that would reduce short-term emissions of construction-generated PM, including measures to reduce mobile-source DPM and fugitive dust. Mitigation Measure AQ-1 includes SJVAPCD-recommended measures for the control of fugitive dust which would help to ensure compliance with SJVAPCD's Regulation VIII. With implementation of Mitigation Measure AQ-1 localized PM emissions would be reduced to acceptable levels. With mitigation, this impact would be considered less than significant.

Impact AQ-D. Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?

Other emissions potentially associated with the proposed project would be predominantly associated with the generation of odors during project construction. The occurrence and severity of odor impacts depend on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes.

Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, no major sources of odors have been identified in the project area. This impact would be considered *less than significant*.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- Carbon Dioxide. Carbon dioxide (CO_2) 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 (U.S. EPA 2018).

- Methane. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 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 (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane into the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2018).

- Nitrous Oxide. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O 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, 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 114 years (U.S. EPA 2018).

- Hydrofluorocarbons. Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2018).

- Perfluorocarbons. Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F1_4). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018).

- Nitrogen Trifluoride. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO_2e). While NF_3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF_3 was listed by California as a high global warming potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).

- Sulfur Hexafluoride. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2018).

- Black Carbon. Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2018).

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. Often, estimates of GHG emissions are presented in CO_2e, which weighs each gas by its global warming potential (GWP). 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. Table 11 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHG with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Table 11.
Global Warming Potential for Greenhouse Gases

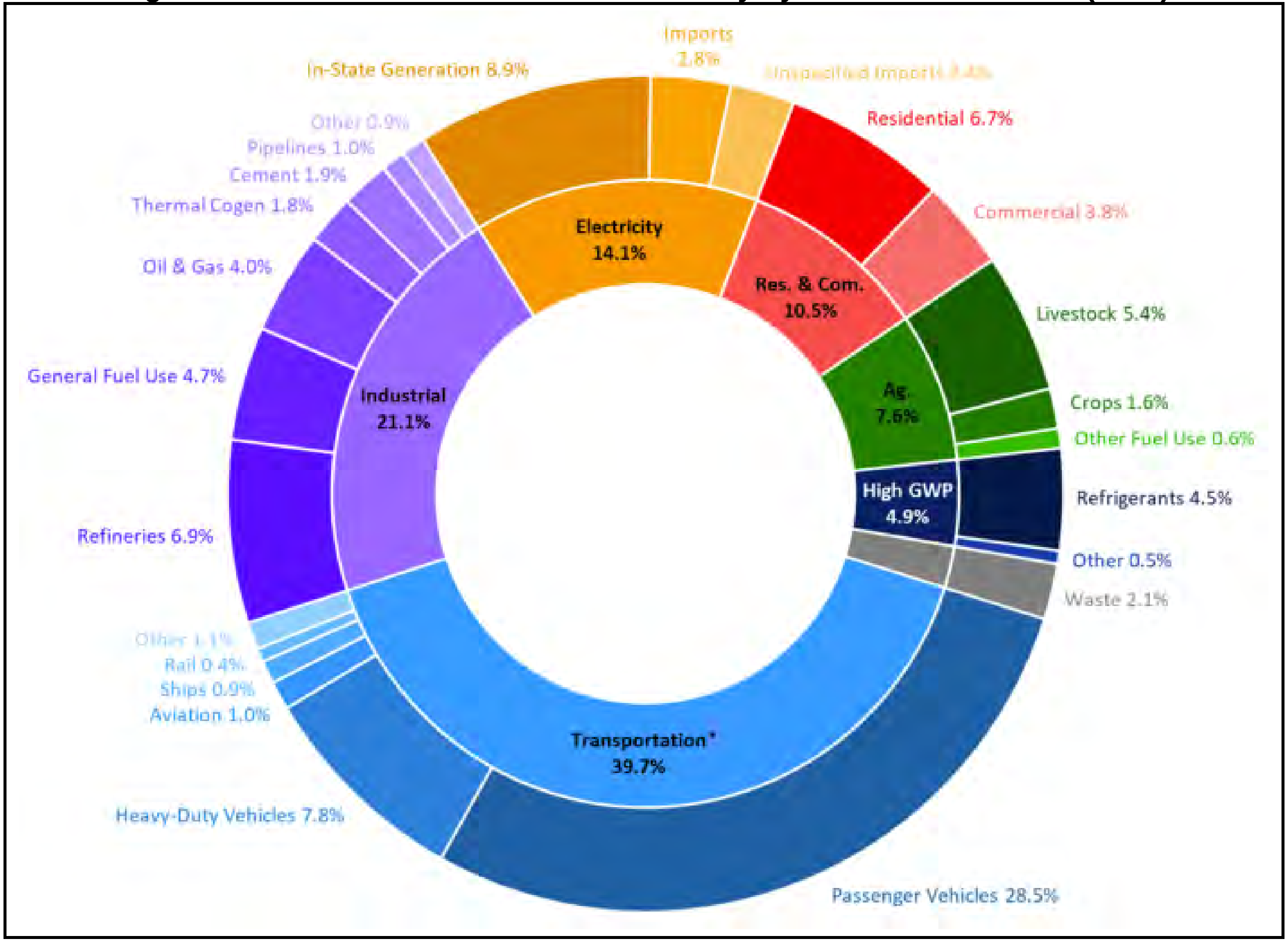
Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298
**Based on IPCC GWP values for 100-year time horizon Source: IPCC 2007*	

Statewide GHG Emissions

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. Worldwide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2018).

In 2020, GHG emissions within California totaled 369.2 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 4. Within California, the transportation sector is the largest contributor, accounting for approximately 37 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 20 percent. Electricity generation totaled roughly 16 percent (ARB 2022).

Figure 4. California GHG Emissions Inventory by Sector & Subsector (2020)



Source: ARB 2022a

Short-Lived Climate Pollutants

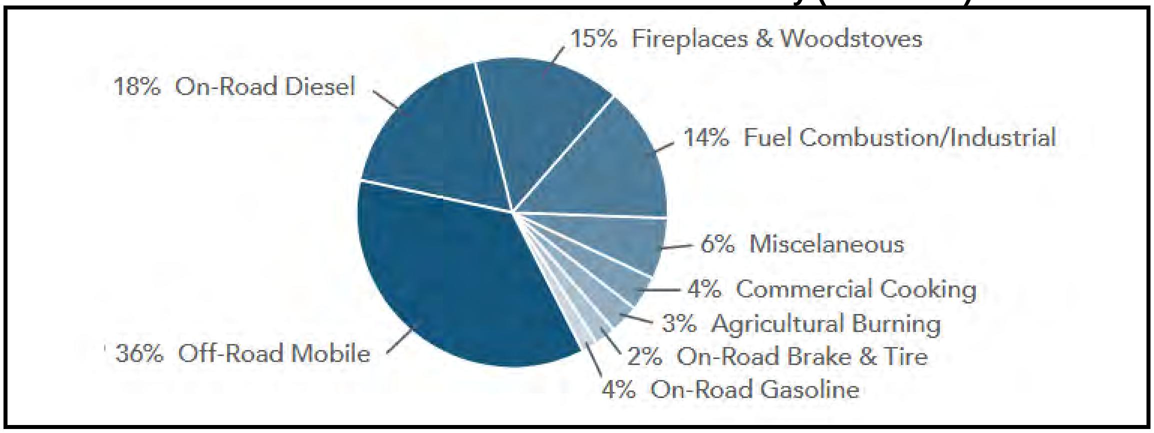
Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and methane also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 5. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2017).

EFFECTS OF GLOBAL CLIMATE CHANGE

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Figure 5.
California Black Carbon Emissions Inventory (Year 2013)



Source: ARB 2017

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (ARB 2017).

REGULATORY FRAMEWORK

FEDERAL

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. In addition, the executive order directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles, which was published on September 15, 2009. On May 7, 2010 the final Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

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

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, and SF_6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October 2008, ARB published its *Climate Change Proposed Scoping Plan,* which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with the implementation of Senate Bill 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The *2017 Climate Change Scoping Plan*, which was released on November 2017. The *2017 Climate Change Scoping Plan* incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and EO B-30-15. Most notably, the *2017 Climate Change Scoping Plan* encourages zero net increases in GHG emissions. However, the *2017 Climate Change Scoping Plan* recognizes that achieving net zero increases in GHG emissions may not be possible or appropriate for all projects and that the inability of a project to mitigate its GHG emissions to zero would not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.

On November 16, 2022, the ARB approved the *2022 Scoping Plan for Achieving Carbon Neutrality*. The 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045 (CARB 2022b).

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. Statute SB X1-2 superceded this Executive Order in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375

Senate Bill (SB) 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land-use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld. In 2018, ARB adopted updated SB 375 targets.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Code is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods.

The 2019 Building Energy Efficiency Standards (2019 Standards), which were adopted in May 2018, address several important areas including smart residential photovoltaic systems, updated thermal envelope standards to prevent heat transfer, residential and nonresidential ventilation requirements, and non-residential lighting requirements. While the 2019 standards lead to notable energy reductions, homes may still utilize other energy sources like natural gas. Actual energy savings depend on various factors such as building orientation and sun exposure. Non-residential buildings can expect around 30 percent energy reduction primarily due to lighting upgrades.

More recently, the 2022 Building Energy Efficiency Standards (2022 Standards) were approved in December 2021 to further enhance energy efficiency in buildings. These standards promote efficient electric heat pumps, establish electric-ready requirements when installing natural gas, support future battery storage installation, and expand solar photovoltaic and battery storage standards. Notably, the 2022 standards extend solar PV system requirements and battery storage capabilities to various land uses, including high-rise multi-family and non-residential structures like office buildings, schools, restaurants, warehouses, theaters, and grocery stores. The sizing of solar systems for these structures should aim to meet targets of up to 60 percent of the building's loads. These new solar requirements came into effect on January 1, 2023, aligning with California's goal of achieving a net-zero carbon footprint by 2045. (CEC 2022).

Senate Bill 97

Senate Bill 97 (SB 97) was enacted in 2007. SB 97 required OPR to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Strategy*) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The *SLCP Strategy* also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the *SLCP Strategy* also identifies measures that can reduce hydrofluorocarbon (HFC) emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-Global Warming Potential (GWP) refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2017).

REGIONAL

Merced County Association of Governments 2022-2045 RTP/SCS

The MCAG 2022-2045 RTP/SCS seeks to ensure that transportation within the county operates and will continue to operate efficiently. The regional transportation plan focuses on regional transportation infrastructure needs while the SCS addresses planned growth patterns. Linking RTP and SCS ensures that future changes to the regional transportation network will address both existing and future needs. The MCAG 2022-245 RTP/SCS is oriented around meeting regulatory requirements of the FAST Act, Clean Air Act, Title VI of the Civil Rights Act, Senate Bill (SB) 37, the California Complete Streets Act and the California Environmental Quality Act (CEQA).

SJVAPCD Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved the SJVAPCD's *Climate Change Action Plan* with the following goals and actions:

Goals:

- Assist local land-use agencies with California Environmental Quality Act (CEQA) issues relative to projects with GHG emissions increases.
- Assist Valley businesses in complying with mandates of AB 32.
- Ensure that climate protection measures do not cause increase in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

- Authorize the Air Pollution Control Officer to develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.
- Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
- Authorize the Air Pollution Control Officer to enhance the SJVAPCD's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB32 emission reporting requirements to submit simultaneous streamlined reports to the SJVAPCD and the state of California with minimal duplication.
- Authorize the Air Pollution Control Officer to develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.
- Direct the Air Pollution Control Officer to support climate protection measures that reduce GHG emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted area.

SJVAPCD CEQA Greenhouse Gas Guidance.

On December 17, 2009, the SJVAPCD Governing Board adopted "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and the policy, "District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific greenhouse gas emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their greenhouse gas emissions, whether through project design elements or mitigation.

The SJVAPCD's approach is intended to streamline the process of determining if project-specific greenhouse gas emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document. Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of greenhouse gas emissions and would be determined to have a less than significant cumulative impact for greenhouse gas emissions. Projects not complying with BPS would require quantification of greenhouse gas emissions and demonstration that greenhouse gas emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of greenhouse gas emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates Best Performance Standards.

For stationary source permitting projects, best performance standards are "the most stringent of the identified alternatives for control of greenhouse gas emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class." For development projects, best performance standards are "any combination of identified greenhouse gas emission reduction measures, including project design elements and land use decisions that reduce project specific greenhouse gas emission reductions by at least 29 percent compared with business as usual." At the time that this guidance was released, SJVAPCD had proposed to create a list of all approved Best Performance Standards (BPS)to help in the determination as to whether a proposed project has reduced its GHG emissions by 29 percent.

IMPACTS & MITIGATION MEASURES

METHODOLOGY

Short-term Impacts

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod computer program. Modeling includes emissions generated during site preparation, grading, building construction, paving and architectural coating. Detailed construction information, including construction schedules and equipment, has not been identified for the proposed project. As a result, default construction phases and equipment assumptions contained in the CalEEMod model were, therefore, relied upon for the calculation of construction-generated emissions. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Impacts

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.21 computer program. Emissions were quantified for mobile sources, area sources, energy use, water use, waste generation and refrigerant emissions. Operational emissions were evaluated based on proposed land uses to be developed and traffic generation rates derived from the traffic analysis prepared for the project (JLB 2023). All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model. Due to anticipated reductions in future fleet-average mobile-source and energy emission rates, emissions for post-year 2026 operational conditions would be less. Modeling assumptions and output files are included in Appendix A of this report.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

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

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

The State CEQA Guidelines do not provide numeric or qualitative thresholds of significance for evaluating GHG emissions associated with proposed development projects. Instead, CEQA leaves the determination of the significance of GHG emissions up to the lead agency and authorizes the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.

In accordance with the SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009), a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

- Comply with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located.

Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency, or

- Implement approved best performance standards, or
- Quantify project GHG emissions and reduce those emissions by at least 29 percent compared to "business as usual" (BAU).

As of January 2024, the SJVAPCD has not adopted recommended mass-emissions (e.g., bright-line) or service-population based GHG significance thresholds, nor has the SJVAPCD released Best Performance Standards (BPS) applicable to development projects for the evaluation of GHG impacts. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals, as noted in the SJVAPCD's 2009 guidance, is considered appropriate in some instances. However, based on the more recent California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW;* also known as the *"Newhall Ranch case")*, substantial evidence would need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included a qualitative approach based on consistency with statewide, regional, and local plans.

It is important to note that other air districts within the State of California have adopted recommended CEQA significance thresholds for GHG emissions. For instance, both the South Coast Air Quality Management District (SCAQMD) and the California Air Pollution Control Officers Association (CAPCOA) have recommended the use of a 900 $MTCO_2e$/year threshold for GHGs. CAPCOA's *CEQA and Climate Change Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act (*January 2008), identifies a recommended thresholds of 900 $MTCO_2e$/year. The SCAQMD's working group recommended an interim GHG thresholds of 1,400 to 3,500 $MTCO_2e$/year, depending on land use designation, below which development projects could be considered to have a less than significant impact (CAPCOA 2008; SCAQMD 2008). In addition, other air districts in the State, including the Bay Area Air Quality Management District (BAAQMD) have recently released recommended GHG significance thresholds that are based on a "fair share" approach for achieving the State's carbon neutrality goals. Consistent with this approach, new land use development projects would be considered to be consistent with the State's carbon neutrality goals and would be considered to have a less than significant impact if: 1) the project is deemed consistent with regional VMT-reduction targets; and 2) the project incorporates recommended BMPs to reduce emissions associated with natural gas use for new development projects. Similarly, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has also recently released Best Management Practices (BMPs), which also include the measures to reduce emissions associated with natural gas use for new development projects, as well as, a requirement that project's meet current CalGreen Tier 2 standards for electric vehicle (EV) parking spaces, except that EV-capable spaces shall instead be EV ready. This additional requirement requires the installation of electrical infrastructure sufficient to service the future installation of EV chargers to help the state meet it's carbon neutrality goals. Project's meeting these requirements are considered to have a less than significant impact on the environment and would not conflict with the State's GHG-reduction and carbon-neutrality goals. The BAAQMD and SMAQMD thresholds are based on an approach endorsed by the Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015).

Although not located within the above jurisdictions, development in the City of Los Banos would be subject to the same statewide building standards (i.e., CalGreen). As a result, development within the City of Los Banos and associated GHG emissions would be substantially similar to and comparable to emissions generated by developments within other areas of the state, including the BAAQMD and SMAQMD jurisdictions. Given that climate change is inherently a cumulative impact that occurs on a global scale, these BMPs would, likewise, be considered representative of the project's "fair share" of what would be required to assist the State in meeting its long-term climate goals, including achieving carbon neutrality by 2045, as identified by the BAAQMD and the SMAQMD.

For purposes of this analysis, project-generated GHG emissions would be considered to have a potentially significant impact on the environment if project-generated GHG emissions would exceed 900 $MTCO_2e$/year, or if the project does not incorporate BMPs to reduce natural gas use and exceed CalGreen Tier 2 standards for EV parking spaces.

PROJECT IMPACTS

Impact GHG-A.	*Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Short-term and long-term GHG emissions associated with the development of the proposed project are discussed in greater detail, as follows:

Short-term Greenhouse Gas Emissions

Short-term annual GHG emissions are summarized in Table 12. Based on the modeling conducted, annual emissions of GHGs associated with construction of the proposed project would total approximately 580 $MTCO_2e$. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions would vary, depending on various factors including construction schedules, equipment required, and activities conducted. Assuming an average project life of 30 years, amortized construction-generated GHG emissions would total approximately 19.33 $MTCO_2e$/yr. Annual construction-generated GHG emissions would not exceed the GHG significance threshold of 900 $MTCO_2e$/yr. As a result, short-term construction GHG emissions would not have a significant impact on the environment nor be anticipated to conflict with GHG-reduction efforts. As a result, this impact is considered *less than significant.*

Table 12.
Annual Construction GHG Emissions

Construction Year	GHG Emissions ($MTCO_2e$)
Year 2024	290
Year 2025	290
Total:	580
Amortized Construction Emissions:	19.33
GHG Significance Threshold ($MTCO_2e$/SP/yr):	900
Exceeds Threshold/Significant Impact?	No

Based on CalEEMod computer modeling. Amortized construction-generated GHG emissions assume a 30-year project life. Refer to Appendix A for modeling results and assumptions.

Long-term Greenhouse Gas Emissions

Estimated long-term increases in GHG emissions associated with the proposed project are summarized in Table 13. Annual operational emissions for future target year 2030 were calculated to ensure consistency with SB 32. Based on the modeling conducted, operational GHG emissions would total approximately 658 $MTCO_2e$/year in 2026 and 612 $MTCO_2e$/year in 2030. With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 677 $MTCO_2e$/year in 2026 and 631 $MTCO_2e$/year in 2030. Total project generated GHG emissions would not exceed the GHG significance threshold of 900 $MTCO_2e$/yr. However, the proposed project does not include BMP's that would constitute its "fair share" of what would be required to assist the State in meeting its long-term climate goals, including achieving carbon neutrality by 2045. As a result, this impact would be considered potentially significant.

Mitigation Measures

GHG-1: The following mitigation measures shall be implemented to ensure the project includes BMP's:

a. Building mechanical equipment and appliances shall be electrically powered. The installation of natural-gas service/infrastructure shall be prohibited.
b. Meet current CALGreen Tier 2 standards for electric vehicle (EV) parking spaces, except that all EV parking spaces required by the code shall be "EV-capable" instead of "EV-ready".

Significance After Mitigation

Implementation of Mitigation Measure GHG-1 would prohibit the installation of natural-gas fueled appliances and building mechanical equipment and ensure the insulation of EV-capable parking spaces. These measures would further reduce on-site emissions of GHGs from the project. With mitigation, this impact would be considered less than significant.

Table 13.
Annual 2026 Operational GHG Emissions

Emissions Source	GHG Emissions ($MTCO_2e$/year) [1]	
	Year 2026	Year 2030
Mobile	533	488
Area Source	0.51	0.51
Energy Use	105	105
Waste Generation	17.1	17.1
Water Use	1.05	1.05
Total Project Operational Emissions:	657	612
Amortized Construction Emissions:	19.33	19.33
Total with Amortized Construction Emissions:	677	631
GHG Significance Threshold ($MTCO_2e$/SP/yr):	900	900
Exceeds Threshold/Significant Impact?	No	No

1. Project-generated emissions were quantified using the CalEEMod computer program.
2. Trip length and fleet mix were based on CalEEmod defaults.
3. Includes the use of energy efficient appliances.
4. Includes the use of low-flow water fixtures and water efficient landscaping.
5. Includes compliance with routine maintenance regulatory requirements.
Refer to Appendix A for modeling results and assumptions.

Impact GHG-B. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Consistency with Applicable Plans

Applicable GHG-reduction plans include Merced County Association of Governments (MCAG) 2022 RTP/SCS and the ARB's 2022 Climate Change scoping plan. Project consistency with these plans is discussed in greater detail, as follows:

MCAG 2022-2045 RTP/SCS Consistency

To support the State's GHG-reduction goals, including the goals mandated by SB 32, California established the Sustainable Communities and Climate Protection Act (SB 375). SB 375 requires regional metropolitan planning organizations, such as MCAG, to develop SCSs which align transportation, housing, and land use decisions toward achieving the State's GHG emissions-reduction targets. Under SB 375, the development and implementation of SCSs, which link transportation, land use, housing, and climate policy at the regional level, are designed to reduce per capita mobile-source GHG emissions, which is accomplished through implementation of measures that would result in reductions in per capita VMT.

As previously noted, the MCAG 2022-2046 RTP/SCS was developed in accordance with state and federal requirements including SB 375 which aims to reduce GHG emissions related to mobile sources. As noted in the traffic analysis prepared for this project, based on MCAG guidelines, the proposed project would have a less-than-significant VMT impact . As a result, the proposed project would not conflict with any goals or objectives identified in the MCAG 2022-2046 RTP/SCS.

Climate Change Scoping Plan

The previously adopted 2017 Climate Change Scoping Plan incorporated the State's GHG emissions reductions target of 40 percent below 1990 emissions levels by 2030, as mandated by SB 32. On November 16, 2022, the ARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality. The recently adopted 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier Scoping Plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045. A significant part of achieving the SB 32 goals are strategies to promote sustainable communities, such as the promotion of zero net energy buildings, and improved transportation choices that result in reducing VMT. Other measures include the increased use of low-carbon fuels and cleaner vehicles.

As noted above, the proposed project would have a less-than-significant impact with regard to regional VMT-reduction targets and, as such, would not conflict with any goals or objectives identified in the MCAG 2022-2046 RTP/SCS. The proposed project would be designed to meet current and future building energy-efficiency standards required by the California Building Code and Green Building Standards. The project design includes measures to reduce overall energy use, water use, and waste generation. Some of these features include energy efficient appliances, high efficiency exterior lighting, low flow water fixtures, water efficient landscaping and irrigation as well as LED interior lighting and high efficiency HVAC systems. In addition, the project will also include solar photovoltaic systems on classroom roofs. Predicted energy savings associated with these systems is not yet available and, as a result, has not been included in operational energy use. These improvements would help to further reduce the project's GHG emissions. However, as noted in Impact GHG-1, the proposed project does not include BMP's that would constitute its "fair share" of what would be required to assist the State in meeting its long-term climate goals, including achieving carbon neutrality by 2045. As a result, this impact would be considered potentially significant.

Mitigation Measures

Implement Mitigation Measure GHG-1.

Significance After Mitigation

As previously noted, implementation of Mitigation Measure GHG-1 would prohibit the installation of natural-gas fueled appliances and building mechanical equipment and ensure the insulation of EV-capable parking spaces. These measures would further reduce on-site emissions of GHGs from the project. With mitigation, the proposed project would not conflict with ARB's *2022 Climate Change Scoping Plan* and would be contributing its fair share toward assisting the State in meeting its goal of carbon neutrality by 2045, per Executive Order B-55-18.

The project's design and implementation of Mitigation Measure GHG-1 would ensure alignment with both statewide and regional climate change policies, plans, and strategies. The analysis conducted to assess the consistency of the project with relevant plans, policies, and regulations, including the *2022 Climate Change Scoping Plan* and the MCAG 2022-2046 RTP/SCS, confirms that the project complies with these regulatory requirements, with recommended mitigation measures incorporated. With mitigation, the project's GHG emissions would not result in a significant impact on the environment nor conflict with applicable GHG-reduction policies, plans, or regulations.

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APPENDIX A

EMISSIONS MODELING & DOCUMENTATION

LOS BANOS TK Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	LOS BANOS TK
Construction Start Date	7/1/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	25.0
Location	37.06639610510864, -120.82772939769484
County	Merced
City	Los Banos
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2315
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Elementary School	300	Student	28.3	34,560	41,843	41,843	—	—
Parking Lot	83.0	Space	2.00	2.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Energy	E-2	Require Energy Efficient Appliances
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes
Refrigerants	R-5	Reduce Service Leak Emissions

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.77	7.39	70.4	65.7	0.11	3.05	29.1	32.2	2.80	13.8	16.6	—	12,220	12,220	0.50	0.11	1.68	12,267
Mit.	2.32	2.30	54.5	66.3	0.11	2.19	11.5	13.7	1.96	5.43	7.40	—	12,220	12,220	0.50	0.11	1.68	12,267

% Reduced	74%	69%	23%	-1%	—	28%	60%	57%	30%	61%	56%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.64	7.64	19.1	25.8	0.04	0.81	0.29	1.10	0.75	0.07	0.81	—	4,436	4,436	0.18	0.07	0.04	4,460
Mit.	1.11	6.49	22.7	28.0	0.04	1.00	0.29	1.28	0.91	0.07	0.98	—	4,436	4,436	0.18	0.07	0.04	4,460
% Reduced	58%	15%	-18%	-9%	—	-23%	—	-17%	-22%	—	-20%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.13	1.33	8.87	9.33	0.02	0.38	2.27	2.65	0.35	1.02	1.37	—	1,746	1,746	0.07	0.03	0.25	1,754
Mit.	0.42	0.93	8.55	10.4	0.02	0.36	0.92	1.25	0.33	0.41	0.70	—	1,746	1,746	0.07	0.03	0.25	1,754
% Reduced	62%	30%	4%	-12%	—	5%	59%	53%	6%	60%	49%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.24	1.62	1.70	< 0.005	0.07	0.41	0.48	0.06	0.19	0.25	—	289	289	0.01	< 0.005	0.04	290
Mit.	0.08	0.17	1.56	1.90	< 0.005	0.07	0.17	0.23	0.06	0.07	0.13	—	289	289	0.01	< 0.005	0.04	290
% Reduced	62%	30%	4%	-12%	—	5%	59%	53%	6%	60%	49%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	8.77	7.39	70.4	65.7	0.11	3.05	29.1	32.2	2.80	13.8	16.6	—	12,220	12,220	0.50	0.11	1.68	12,267
2025	1.44	1.21	10.7	14.0	0.02	0.43	0.15	0.58	0.40	0.04	0.44	—	2,669	2,669	0.11	0.05	0.90	2,686

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.53	1.29	11.5	14.0	0.02	0.50	0.15	0.65	0.46	0.04	0.50	—	2,660	2,660	0.11	0.05	0.02	2,677
2025	2.64	7.64	19.1	25.8	0.04	0.81	0.29	1.10	0.75	0.07	0.81	—	4,436	4,436	0.18	0.07	0.04	4,460
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.13	0.95	8.87	8.94	0.02	0.38	2.27	2.65	0.35	1.02	1.37	—	1,746	1,746	0.07	0.02	0.15	1,754
2025	0.96	1.33	7.14	9.33	0.02	0.29	0.10	0.39	0.27	0.02	0.29	—	1,743	1,743	0.07	0.03	0.25	1,753
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.21	0.17	1.62	1.63	< 0.005	0.07	0.41	0.48	0.06	0.19	0.25	—	289	289	0.01	< 0.005	0.02	290
2025	0.18	0.24	1.30	1.70	< 0.005	0.05	0.02	0.07	0.05	< 0.005	0.05	—	288	288	0.01	< 0.005	0.04	290

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.32	2.30	54.5	66.3	0.11	2.19	11.5	13.7	1.96	5.43	7.40	—	12,220	12,220	0.50	0.11	1.68	12,267
2025	0.65	0.62	12.9	15.8	0.02	0.54	0.15	0.69	0.49	0.04	0.53	—	2,669	2,669	0.11	0.05	0.90	2,686
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.65	0.62	12.9	15.7	0.02	0.54	0.15	0.69	0.49	0.04	0.53	—	2,660	2,660	0.11	0.05	0.02	2,677
2025	1.11	6.49	22.7	28.0	0.04	1.00	0.29	1.28	0.91	0.07	0.98	—	4,436	4,436	0.18	0.07	0.04	4,460
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.37	0.36	8.05	9.72	0.02	0.33	0.92	1.25	0.30	0.41	0.70	—	1,746	1,746	0.07	0.02	0.15	1,754
2025	0.42	0.93	8.55	10.4	0.02	0.36	0.10	0.46	0.33	0.02	0.35	—	1,743	1,743	0.07	0.03	0.25	1,753

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.07	0.06	1.47	1.77	< 0.005	0.06	0.17	0.23	0.05	0.07	0.13	—	289	289	0.01	< 0.005	0.02	290
2025	0.08	0.17	1.56	1.90	< 0.005	0.07	0.02	0.08	0.06	< 0.005	0.06	—	288	288	0.01	< 0.005	0.04	290

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.24	5.77	4.28	24.9	0.05	0.08	3.35	3.43	0.08	0.85	0.93	30.9	5,266	5,297	3.43	0.33	16.0	5,499
Mit.	5.24	5.77	4.28	24.9	0.05	0.08	3.35	3.43	0.08	0.85	0.93	30.8	5,263	5,294	3.41	0.33	16.0	5,495
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.47	4.99	4.75	22.5	0.04	0.08	3.35	3.43	0.08	0.85	0.93	30.9	4,951	4,982	3.49	0.36	0.45	5,175
Mit.	4.47	4.99	4.75	22.5	0.04	0.08	3.35	3.43	0.08	0.85	0.93	30.8	4,947	4,978	3.47	0.35	0.45	5,171
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	1%	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.37	3.96	3.35	16.2	0.03	0.07	2.35	2.42	0.06	0.60	0.66	30.9	3,777	3,808	3.37	0.25	4.96	3,971
Mit.	3.37	3.96	3.35	16.2	0.03	0.07	2.35	2.42	0.06	0.60	0.66	30.8	3,774	3,805	3.36	0.25	4.96	3,967
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.61	0.72	0.61	2.96	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.12	625	631	0.56	0.04	0.82	657

Mit.	0.61	0.72	0.61	2.96	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.09	625	630	0.56	0.04	0.82	657
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742
Area	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	5.24	5.77	4.28	24.9	0.05	0.08	3.35	3.43	0.08	0.85	0.93	30.9	5,266	5,297	3.43	0.33	16.0	5,499
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Area	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	4.47	4.99	4.75	22.5	0.04	0.08	3.35	3.43	0.08	0.85	0.93	30.9	4,951	4,982	3.49	0.36	0.45	5,175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	3.19	3.02	2.92	15.1	0.03	0.03	2.35	2.39	0.03	0.60	0.63	—	3,136	3,136	0.21	0.24	4.93	3,218
Area	0.13	0.92	0.01	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05	3.05	< 0.005	< 0.005	—	3.06
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	3.37	3.96	3.35	16.2	0.03	0.07	2.35	2.42	0.06	0.60	0.66	30.9	3,777	3,808	3.37	0.25	4.96	3,971
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533
Area	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Energy	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	105	105	0.01	< 0.005	—	106
Water	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43
Waste	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.61	0.72	0.61	2.96	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.12	625	631	0.56	0.04	0.82	657

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742
Area	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

Total	5.24	5.77	4.28	24.9	0.05	0.08	3.35	3.43	0.08	0.85	0.93	30.8	5,263	5,294	3.41	0.33	16.0	5,495
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Area	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	4.47	4.99	4.75	22.5	0.04	0.08	3.35	3.43	0.08	0.85	0.93	30.8	4,947	4,978	3.47	0.35	0.45	5,171
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.19	3.02	2.92	15.1	0.03	0.03	2.35	2.39	0.03	0.60	0.63	—	3,136	3,136	0.21	0.24	4.93	3,218
Area	0.13	0.92	0.01	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05	3.05	< 0.005	< 0.005	—	3.06
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	3.37	3.96	3.35	16.2	0.03	0.07	2.35	2.42	0.06	0.60	0.66	30.8	3,774	3,805	3.36	0.25	4.96	3,967
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533
Area	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Energy	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	105	105	0.01	< 0.005	—	105
Water	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05
Waste	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.61	0.72	0.61	2.96	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.09	625	630	0.56	0.04	0.82	657

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.97	1.80	< 0.005	0.09	—	0.09	0.08	—	0.08	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	1.08	1.08	—	0.55	0.55	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2

Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.07	1.21	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	152	152	0.01	0.01	0.65	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.68	7.68	< 0.005	< 0.005	0.02	7.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.90	24.0	28.3	0.05	0.94	—	0.94	0.84	—	0.84	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.32	1.55	< 0.005	0.05	—	0.05	0.05	—	0.05	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.24	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.07	1.21	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	152	152	0.01	0.01	0.65	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.68	7.68	< 0.005	< 0.005	0.02	7.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.23	3.72	0.01	0.18	—	0.18	0.16	—	0.16	—	813	813	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	1.13	1.13	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	0.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.39	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	174	174	0.01	0.01	0.74	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.04	20.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.27	3.27	< 0.005	< 0.005	0.01	3.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	1.18	30.3	35.3	0.06	1.25	—	1.25	1.12	—	1.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.15	3.74	4.36	0.01	0.15	—	0.15	0.14	—	0.14	—	813	813	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.68	0.80	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.39	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	174	174	0.01	0.01	0.74	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.04	20.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.27	3.27	< 0.005	< 0.005	0.01	3.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.59	3.03	0.01	0.11	—	0.11	0.11	—	0.11	—	554	554	0.02	< 0.005	—	556
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.06	0.05	0.47	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.7	91.7	< 0.005	< 0.005	—	92.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.06	1.01	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	126	126	0.01	< 0.005	0.54	129
Vendor	0.01	0.01	0.20	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.40	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.08	0.76	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	113	113	0.01	0.01	0.01	114
Vendor	0.01	0.01	0.22	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.01	156
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.8	26.8	< 0.005	< 0.005	0.05	27.3
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.6	34.6	< 0.005	0.01	0.04	36.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.44	4.44	< 0.005	< 0.005	0.01	4.51
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.72	5.72	< 0.005	< 0.005	0.01	5.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.12	2.91	3.42	0.01	0.12	—	0.12	0.11	—	0.11	—	554	554	0.02	< 0.005	—	556
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.53	0.62	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.7	91.7	< 0.005	< 0.005	—	92.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.06	1.01	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	126	126	0.01	< 0.005	0.54	129
Vendor	0.01	0.01	0.20	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.40	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.08	0.76	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	113	113	0.01	0.01	0.01	114
Vendor	0.01	0.01	0.22	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.01	156
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.8	26.8	< 0.005	< 0.005	0.05	27.3
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.6	34.6	< 0.005	0.01	0.04	36.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.44	4.44	< 0.005	< 0.005	0.01	4.51
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.72	5.72	< 0.005	< 0.005	0.01	5.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.17	7.71	0.01	0.26	—	0.26	0.23	—	0.23	—	1,417	1,417	0.06	0.01	—	1,422
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.13	1.41	< 0.005	0.05	—	0.05	0.04	—	0.04	—	235	235	0.01	< 0.005	—	235
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.92	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	124	124	0.01	< 0.005	0.50	126
Vendor	0.01	0.01	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	147	147	< 0.005	0.02	0.40	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.70	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	< 0.005	0.01	112
Vendor	0.01	0.01	0.21	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	147	147	< 0.005	0.02	0.01	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.43	0.00	0.00	0.06	0.06	0.00	0.02	0.02	—	67.3	67.3	< 0.005	< 0.005	0.13	68.4
Vendor	< 0.005	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.10	90.9

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.32	7.46	8.76	0.01	0.32	—	0.32	0.29	—	0.29	—	1,417	1,417	0.06	0.01	—	1,422
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.06	0.06	1.36	1.60	< 0.005	0.06	—	0.06	0.05	—	0.05	—	235	235	0.01	< 0.005	—	235
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.92	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	124	124	0.01	< 0.005	0.50	126
Vendor	0.01	0.01	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	147	147	< 0.005	0.02	0.40	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.70	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	< 0.005	0.01	112
Vendor	0.01	0.01	0.21	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	147	147	< 0.005	0.02	0.01	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.43	0.00	0.00	0.06	0.06	0.00	0.02	0.02	—	67.3	67.3	< 0.005	< 0.005	0.13	68.4
Vendor	< 0.005	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.10	90.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.71	0.96	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	0.01	< 0.005	0.01	116

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.32	8.62	10.6	0.01	0.39	—	0.39	0.36	—	0.36	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.83	1.02	< 0.005	0.04	—	0.04	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.15	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	0.01	< 0.005	0.01	116
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	—	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.1	22.1	< 0.005	< 0.005	< 0.005	22.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.18	2.18	< 0.005	< 0.005	< 0.005	2.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.36	0.36	< 0.005	< 0.005	< 0.005	0.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.10	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	—	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.1	22.1	< 0.005	< 0.005	< 0.005	22.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.18	2.18	< 0.005	< 0.005	< 0.005	2.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.36	0.36	< 0.005	< 0.005	< 0.005	0.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.93	4.71	3.84	23.1	0.05	0.05	3.35	3.39	0.04	0.85	0.90	—	4,622	4,622	0.27	0.33	16.0	4,742
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Element School	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.42	4.17	4.33	22.1	0.04	0.05	3.35	3.39	0.04	0.85	0.90	—	4,313	4,313	0.33	0.35	0.41	4,425
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.58	0.55	0.53	2.76	0.01	0.01	0.43	0.44	0.01	0.11	0.12	—	519	519	0.04	0.04	0.82	533

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	92.6	92.6	0.01	< 0.005	—	93.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	135	135	0.02	< 0.005	—	137
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	92.6	92.6	0.01	< 0.005	—	93.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	135	135	0.02	< 0.005	—	137
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.06	7.06	< 0.005	< 0.005	—	7.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	22.4	22.4	< 0.005	< 0.005	—	22.6

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	91.1	91.1	0.01	< 0.005	—	92.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.02	< 0.005	—	135
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	91.1	91.1	0.01	< 0.005	—	92.0

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.02	< 0.005	—	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	15.1	15.1	< 0.005	< 0.005	—	15.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.06	7.06	< 0.005	< 0.005	—	7.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	22.1	22.1	< 0.005	< 0.005	—	22.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0
Parking Lot	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
Total	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary School	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0
Parking Lot	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
Total	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.27	0.25	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Total	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Total	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.27	0.25	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Total	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Total	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	6/10/2024	7/5/2024	5.00	20.0	—
Grading	Grading	7/5/2024	9/5/2024	5.00	45.0	—
Building Construction	Building Construction	9/5/2024	10/29/2025	5.00	300	—
Paving	Paving	10/15/2025	12/2/2025	5.00	35.0	—
Architectural Coating	Architectural Coating	10/15/2025	12/2/2025	5.00	35.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 3	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 3	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 3	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Tier 3	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 3	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Tier 3	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Tier 3	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Tier 3	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	14.5	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	5.66	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	2.90	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	14.5	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	5.66	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	2.90	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	51,840	17,280	5,227

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	30.0	0.00	—
Grading	—	—	135	0.00	—
Paving	0.00	0.00	0.00	0.00	2.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Elementary School	0.00	0%
Parking Lot	2.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	1,214	0.00	0.00	316,507	4,672	0.00	0.00	1,218,137
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	1,214	0.00	0.00	316,507	4,672	0.00	0.00	1,218,137
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	51,840	17,280	5,227

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	165,671	204	0.0330	0.0040	1,560,254
Parking Lot	76,317	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	162,973	204	0.0330	0.0040	1,560,254
Parking Lot	76,317	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	727,272	1,341,478
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	651,927	-248,975
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	54.8	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	54.8	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

Elementary School	Household refrigerators and/or freezers	R-134a	750	0.02	0.60	0.00	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	750	< 0.005	4.00	4.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	750	< 0.005	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	750	0.02	0.60	—	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	750	< 0.005	4.00	2.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	750	< 0.005	1.00	—	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	32.5	annual days of extreme heat
Extreme Precipitation	1.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	71.7
AQ-PM	55.8
AQ-DPM	27.7
Drinking Water	94.4
Lead Risk Housing	33.0
Pesticides	90.0
Toxic Releases	3.41
Traffic	34.5
Effect Indicators	—
CleanUp Sites	31.2
Groundwater	82.7
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	43.8
Solid Waste	88.9
Sensitive Population	—
Asthma	97.6
Cardio-vascular	84.8
Low Birth Weights	55.1
Socioeconomic Factor Indicators	—

Education	78.5
Housing	52.1
Linguistic	88.7
Poverty	73.0
Unemployment	96.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	19.1068908
Employed	9.919158219
Median HI	27.55036571
Education	—
Bachelor's or higher	17.25907866
High school enrollment	22.2764019
Preschool enrollment	26.03618632
Transportation	—
Auto Access	69.12613884
Active commuting	13.21698961
Social	—
2-parent households	58.97600411
Voting	24.85563968
Neighborhood	—
Alcohol availability	78.24971128
Park access	57.2308482
Retail density	12.34441165

Supermarket access	31.1176697
Tree canopy	16.18118825
Housing	—
Homeownership	46.75991274
Housing habitability	57.92377775
Low-inc homeowner severe housing cost burden	42.17887848
Low-inc renter severe housing cost burden	56.92287951
Uncrowded housing	44.92493263
Health Outcomes	—
Insured adults	41.30630053
Arthritis	0.0
Asthma ER Admissions	4.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	28.6
Cognitively Disabled	64.4
Physically Disabled	57.4
Heart Attack ER Admissions	1.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	39.3
Physical Health Not Good	0.0

Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	73.9
English Speaking	16.2
Foreign-born	52.2
Outdoor Workers	8.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.1
Traffic Density	17.7
Traffic Access	0.0
Other Indices	—
Hardship	81.4
Other Decision Support	—
2016 Voting	40.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	89.0
Healthy Places Index Score for Project Location (b)	22.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	—
Land Use	Acreage adjusted to reflect actual land use type
Construction: Construction Phases	No existing structures
Operations: Refrigerants	Project does not include walk-in fridge or freezer GWP adjusted to reflect new GWP limit of 750 established by SB 1206
Operations: Vehicle Data	Based on traffic report daily trips over estimated student size.

LOS BANOS TK v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	LOS BANOS TK v2
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	25.0
Location	37.06639610510864, -120.82772939769484
County	Merced
City	Los Banos
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2315
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Elementary School	300	Student	28.3	34,560	41,843	41,843	—	—

Parking Lot	83.0	Space	2.00	2.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Energy	E-2	Require Energy Efficient Appliances
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes
Refrigerants	R-5	Reduce Service Leak Emissions

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.28	4.86	3.64	20.5	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.9	4,877	4,908	3.38	0.30	10.5	5,093
Mit.	4.28	4.86	3.64	20.5	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.8	4,874	4,905	3.36	0.30	10.5	5,089
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.64	4.22	4.01	18.2	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.9	4,589	4,620	3.42	0.32	0.31	4,801
Mit.	3.64	4.22	4.01	18.2	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.8	4,586	4,617	3.41	0.32	0.30	4,797
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	1%	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.77	3.40	2.86	13.3	0.03	0.06	2.35	2.41	0.06	0.60	0.66	30.9	3,514	3,545	3.33	0.22	3.26	3,698
Mit.	2.77	3.40	2.86	13.3	0.03	0.06	2.35	2.41	0.06	0.60	0.66	30.8	3,511	3,542	3.32	0.22	3.26	3,694
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51	0.62	0.52	2.43	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.12	582	587	0.55	0.04	0.54	612
Mit.	0.51	0.62	0.52	2.43	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.09	581	586	0.55	0.04	0.54	612
% Reduced	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336
Area	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63

Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	4.28	4.86	3.64	20.5	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.9	4,877	4,908	3.38	0.30	10.5	5,093
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Area	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	3.64	4.22	4.01	18.2	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.9	4,589	4,620	3.42	0.32	0.31	4,801
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.59	2.46	2.43	12.2	0.03	0.03	2.35	2.38	0.03	0.60	0.63	—	2,873	2,873	0.17	0.22	3.23	2,945
Area	0.13	0.92	0.01	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05	3.05	< 0.005	< 0.005	—	3.06
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	635	635	0.07	< 0.005	—	638
Water	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	2.77	3.40	2.86	13.3	0.03	0.06	2.35	2.41	0.06	0.60	0.66	30.9	3,514	3,545	3.33	0.22	3.26	3,698
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488
Area	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Energy	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	105	105	0.01	< 0.005	—	106
Water	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43
Waste	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

Total	0.51	0.62	0.52	2.43	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.12	582	587	0.55	0.04	0.54	612

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336
Area	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	4.28	4.86	3.64	20.5	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.8	4,874	4,905	3.36	0.30	10.5	5,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Area	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	3.64	4.22	4.01	18.2	0.04	0.07	3.35	3.42	0.07	0.85	0.92	30.8	4,586	4,617	3.41	0.32	0.30	4,797
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.59	2.46	2.43	12.2	0.03	0.03	2.35	2.38	0.03	0.60	0.63	—	2,873	2,873	0.17	0.22	3.23	2,945
Area	0.13	0.92	0.01	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05	3.05	< 0.005	< 0.005	—	3.06

Energy	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	634	634	0.07	< 0.005	—	636
Water	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	2.77	3.40	2.86	13.3	0.03	0.06	2.35	2.41	0.06	0.60	0.66	30.8	3,511	3,542	3.32	0.22	3.26	3,694
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488
Area	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Energy	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	105	105	0.01	< 0.005	—	105
Water	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05
Waste	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.51	0.62	0.52	2.43	0.01	0.01	0.43	0.44	0.01	0.11	0.12	5.09	581	586	0.55	0.04	0.54	612

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.97	3.79	3.21	18.7	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	4,233	4,233	0.22	0.29	10.5	4,336

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.60	3.40	3.59	17.9	0.04	0.04	3.35	3.39	0.04	0.85	0.89	—	3,951	3,951	0.26	0.31	0.27	4,051
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.47	0.45	0.44	2.23	0.01	0.01	0.43	0.43	< 0.005	0.11	0.11	—	476	476	0.03	0.04	0.53	488

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	92.6	92.6	0.01	< 0.005	—	93.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	135	135	0.02	< 0.005	—	137

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	92.6	92.6	0.01	< 0.005	—	93.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	135	135	0.02	< 0.005	—	137
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.06	7.06	< 0.005	< 0.005	—	7.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	22.4	22.4	< 0.005	< 0.005	—	22.6

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	91.1	91.1	0.01	< 0.005	—	92.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.02	< 0.005	—	135
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Element School	—	—	—	—	—	—	—	—	—	—	—	—	91.1	91.1	0.01	< 0.005	—	92.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.7	42.7	0.01	< 0.005	—	43.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.02	< 0.005	—	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	15.1	15.1	< 0.005	< 0.005	—	15.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.06	7.06	< 0.005	< 0.005	—	7.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	22.1	22.1	< 0.005	< 0.005	—	22.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501

Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0
Parking Lot	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
Total	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501
Parking Lot	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
Total	0.05	0.02	0.42	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	500	500	0.04	< 0.005	—	501

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0
Parking Lot	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
Total	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	0.01	< 0.005	—	83.0

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.27	0.25	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Total	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Total	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.27	0.25	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20
Total	0.27	1.04	0.01	1.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.18	6.18	< 0.005	< 0.005	—	6.20

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51
Total	0.02	0.17	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.51

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.39	2.63	4.02	0.14	< 0.005	—	8.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.23	0.44	0.67	0.02	< 0.005	—	1.43

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.25	0.95	2.19	0.13	< 0.005	—	6.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.21	0.16	0.36	0.02	< 0.005	—	1.05

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.89	0.00	4.89	0.49	0.00	—	17.1

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Element School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	1,214	0.00	0.00	316,507	4,672	0.00	0.00	1,218,137
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	1,214	0.00	0.00	316,507	4,672	0.00	0.00	1,218,137
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	51,840	17,280	5,227

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	165,671	204	0.0330	0.0040	1,560,254
Parking Lot	76,317	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	162,973	204	0.0330	0.0040	1,560,254
Parking Lot	76,317	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	727,272	1,341,478
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	651,927	-248,975
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	54.8	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	54.8	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	750	0.02	0.60	0.00	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	750	< 0.005	4.00	4.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	750	< 0.005	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	750	0.02	0.60	—	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	750	< 0.005	4.00	2.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	750	< 0.005	1.00	—	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	32.5	annual days of extreme heat
Extreme Precipitation	1.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A

Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	71.7
AQ-PM	55.8
AQ-DPM	27.7
Drinking Water	94.4
Lead Risk Housing	33.0
Pesticides	90.0
Toxic Releases	3.41
Traffic	34.5
Effect Indicators	—
CleanUp Sites	31.2
Groundwater	82.7
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	43.8
Solid Waste	88.9
Sensitive Population	—
Asthma	97.6
Cardio-vascular	84.8
Low Birth Weights	55.1
Socioeconomic Factor Indicators	—
Education	78.5
Housing	52.1
Linguistic	88.7
Poverty	73.0
Unemployment	96.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	19.1068908
Employed	9.919158219
Median HI	27.55036571
Education	—
Bachelor's or higher	17.25907866
High school enrollment	22.2764019
Preschool enrollment	26.03618632
Transportation	—
Auto Access	69.12613884
Active commuting	13.21698961
Social	—
2-parent households	58.97600411
Voting	24.85563968
Neighborhood	—
Alcohol availability	78.24971128
Park access	57.2308482
Retail density	12.34441165
Supermarket access	31.1176697
Tree canopy	16.18118825
Housing	—
Homeownership	46.75991274
Housing habitability	57.92377775
Low-inc homeowner severe housing cost burden	42.17887848

Low-inc renter severe housing cost burden	56.92287951
Uncrowded housing	44.92493263
Health Outcomes	—
Insured adults	41.30630053
Arthritis	0.0
Asthma ER Admissions	4.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	28.6
Cognitively Disabled	64.4
Physically Disabled	57.4
Heart Attack ER Admissions	1.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	39.3
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	73.9
English Speaking	16.2
Foreign-born	52.2
Outdoor Workers	8.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.1
Traffic Density	17.7
Traffic Access	0.0
Other Indices	—
Hardship	81.4
Other Decision Support	—
2016 Voting	40.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	89.0
Healthy Places Index Score for Project Location (b)	22.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Acreage adjusted to reflect actual land use type
Construction: Construction Phases	No existing structures
Operations: Refrigerants	Project does not include walk-in fridge or freezer GWP adjusted to reflect new GWP limit of 750 established by SB 1206
Operations: Vehicle Data	Based on traffic report daily trips over estimated student size.

December 20, 2023

Scott Odell
Odell Planning & Research, Inc
49346 Road 426, Suite 2,
Oakhurst, CA, 93644

Re: Public Record Request Release for Transitional Kindergarten Center
Public Records Request Number: 23-852

Dear Mr. Odell:

The San Joaquin Valley Air Pollution Control District (District) has received a public records request to identify any facilities and/or traffic corridors within a ¼ mile of the proposed Transitional Kindergarten Center (Project) that are expected to emit hazardous emissions, as required per public resources code 21151.8. The Project is located at the southwest corner of Place Road and B Street in the City of Los Banos.

The District offers the following comments regarding the Project:

1) **Facilities Subject to District Permitting Requirements**

There are three facilities subject to District permit requirements that are located within ¼ miles of the Project, identified in the table below. Enclosed are the facilities' permits to operate.

Facility ID	Facility Name	Facility Description	Facility Address	Latitude, Longitude
N1354	MANUEL A AVILA, DBA - CENTRAL CONCRETE	READY-MIXED CONCRETE	402 N MERCY SPRINGS RD	37.06376, -120.833902
N4107	CITY OF LOS BANOS	WATER SUPPLY	1300 EAST B ST	37.067167, -120.834466
N4108	CITY OF LOS BANOS	WATER SUPPLY	1630 SAN LUIS ST (Well #7)	37.062055, -120.829349

2) Freeway, High Volume Roadways, & Railways

The District recommends the project proponent contact Caltrans and/or other local transportation agencies to identify freeways and busy traffic corridors as defined in the Health and Safety Code.

3) Other Non-Permitted Facilities

There are currently no agricultural and/or industrial-related facilities located within a ¼ mile of the Project.

If you have any questions or require further information, please contact Patrick Chimienti by e-mail at patrick.chimienti@valleyair.org or by phone at (559) 230-6139.

Sincerely,

Seth Lane
Program Manager - Technical Services Department

Facility # N-1354
MANUEL A AVILA, DBA - CENTRAL CONCRETE
402 N MERCEY SPRINGS RD
PO BOX 2546
LOS BANOS, CA 93635

Notice of Permit Issuance

The enclosed permit unit requirements authorize the operation of the equipment as described. These permit unit requirements supersede any and all previous permits for the specified equipment.* Please insert these documents into the Facility Permit to Operate, and post copies on or near the equipment as required by District Rule 2010.

Please contact any of our Small Business Assistance (SBA) staff at the numbers below if you have any questions:

Modesto:	(209) 557-6446
Fresno:	(559) 230-5888
Bakersfield:	(661) 392-5665

*Failure to comply with the permit unit requirements may result in enforcement action.

Permit to Operate

FACILITY: N-1354 **EXPIRATION DATE:** 09/30/2027

LEGAL OWNER OR OPERATOR:	MANUEL A AVILA, DBA - CENTRAL CONCRETE
MAILING ADDRESS:	402 N MERCEY SPRINGS RD PO BOX 2546 LOS BANOS, CA 93635
FACILITY LOCATION:	402 N MERCEY SPRINGS RD LOS BANOS, CA 93635
FACILITY DESCRIPTION:	READY-MIXED CONCRETE

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Brian Clements
Director of Permit Services

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-1354-1-0 **EXPIRATION DATE:** 09/30/2027

EQUIPMENT DESCRIPTION:
SUNMASTER BATCH AND PRE-MIX PLANT

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]

Permit to Operate

FACILITY: N-4107 **EXPIRATION DATE:** 01/31/2024

LEGAL OWNER OR OPERATOR: CITY OF LOS BANOS
MAILING ADDRESS: 411 MADISON AVE
LOS BANOS, CA 93635

FACILITY LOCATION: 1300 EAST "B" ST
LOS BANOS, CA 93635

FACILITY DESCRIPTION: WATER SUPPLY

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Arnaud Marjollet
Director of Permit Services

Jan 16 2019 3:54PM -- MCDONOUD

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-4107-1-0 **EXPIRATION DATE:** 01/31/2024

EQUIPMENT DESCRIPTION:
190 BHP WAUKESHA/SCANIA MODEL F475DWUF DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A DRINKING WATER SYSTEM (WELL PUMP #5)

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. This engine shall be used exclusively to operate a drinking water system. [CH&SC 41701.6]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 2 or 40% opacity. [CH&SC 41701.6]
5. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
6. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
7. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
8. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed any of the following limits: 30 minutes per week, 2 hours per month, or 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115 and CH&SC 41701.6]
9. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
10. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
11. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
12. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. The permittee shall maintain monthly records of the type of fuel purchased, the amount of fuel purchased, date when the fuel was purchased, signature of the permittee who received the fuel, and signature of the fuel supplier indicating that the fuel was delivered. [17 CCR 93115]

14. If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]

15. If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]

16. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Permit to Operate

FACILITY: N-4108 **EXPIRATION DATE:** 01/31/2024

LEGAL OWNER OR OPERATOR:	CITY OF LOS BANOS
MAILING ADDRESS:	411 MADISON AVE LOS BANOS, CA 93635
FACILITY LOCATION:	1630 SAN LUIS ST (WELL #7) LOS BANOS, CA 93635
FACILITY DESCRIPTION:	WATER SUPPLY

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Arnaud Marjollet
Director of Permit Services

Jan 16 2019 3:08PM -- MCDONOUD

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-4108-1-0 **EXPIRATION DATE:** 01/31/2024

EQUIPMENT DESCRIPTION:
155 BHP SCANIA/WAUKESHA CVAB MODEL A8A06/F47604 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A DRINKING WATER SYSTEM (WELL PUMP #7)

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. When this engine is operated under non-emergency circumstances (for example, engine testing and/or maintenance), no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. This engine shall be used exclusively to operate a drinking water system. [CH&SC 41701.6]
5. When this engine is operated under emergency circumstances, no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 2 or 40% opacity. [CH&SC 41701.6]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
7. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
8. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
9. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed any of the following limits: 30 minutes per week, 2 hours per month, or 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115 and CH&SC 41701.6]
10. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
11. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
12. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
14. The permittee shall maintain monthly records of the type of fuel purchased, the amount of fuel purchased, date when the fuel was purchased, signature of the permittee who received the fuel, and signature of the fuel supplier indicating that the fuel was delivered. [17 CCR 93115]
15. If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]
16. If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]
17. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Appendix 2

Los Banos Unified School District

Early Learning Center Project

Special Status Species List

Appendix 2

Special Status Species for the Los Banos Unified School District Early Learning Center Project

The following sources were reviewed to obtain information on sensitive biological resources occurring in the vicinity of the proposed Project: California Natural Diversity Database (CNDDB), United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPCS), the USFWS National Wetlands Inventory (NWI), and the Parks, Open Space, and Conservation Element of the City's 2042 General Plan. The species name and special status are provided below.

The CNDDB species list that are known or historically occurred within the nine-quad search area surrounding the Project: Charleston School, Delta Ranch, Dos Palos, Ingomar, Los Banos, Ortigalita Peak NW, San Luis Ranch, Turner Ranch, and Volta.

Scientific Name	Common Name	Federal Status	State Status	CDFW
Ambystoma californiense	California tiger salamander	Threatened	Threatened	WL
Lithobates pipiens	northern leopard frog	None	None	SSC
Rana boylii	foothill yellow-legged frog	Threatened	Endangered	-
Rana draytonii	California red-legged frog	Threatened	None	SSC
Spea hammondii	western spadefoot	None	None	SSC
Aquila chrysaetos	golden eagle	None	None	FP WL
Buteo regalis	ferruginous hawk	None	None	WL
Buteo swainsoni	Swainsons hawk	None	Threatened	-
Circus hudsonius	northern harrier	None	None	SSC
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP
Eremophila alpestris actia	California horned lark	None	None	WL
Branta hutchinsii leucopareia	Aleutian cackling goose	Delisted	None	WL
Ardea alba	great egret	None	None	-
Ardea herodias	great blue heron	None	None	-
Botaurus lentiginosus	American bittern	None	None	-
Egretta thula	snowy egret	None	None	-
Ixobrychus exilis	least bittern	None	None	SSC
Nycticorax nycticorax	black-crowned night heron	None	None	-
Charadrius montanus	mountain plover	None	None	SSC
Falco mexicanus	prairie falcon	None	None	WL
Antigone canadensis tabida	greater sandhill crane	None	Threatened	FP
Agelaius tricolor	tricolored blackbird	None	Threatened	SSC
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC
Lanius ludovicianus	loggerhead shrike	None	None	SSC
Chlidonias niger	black tern	None	None	SSC
Nannopterum auritum	double-crested cormorant	None	None	WL
Coturnicops noveboracensis	yellow rail	None	None	SSC

Numenius americanus	long-billed curlew	None	None	WL
Asio flammeus	short-eared owl	None	None	SSC
Athene cunicularia	burrowing owl	None	None	SSC
Branchinecta conservatio	Conservancy fairy shrimp	Endangered	None	-
Branchinecta longiantenna	longhorn fairy shrimp	Endangered	None	-
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	-
Linderiella occidentalis	California linderiella	None	None	-
Lepidurus packardi	vernal pool tadpole shrimp	Endangered	None	-
Mylopharodon conocephalus	hardhead	None	None	SSC
Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	Threatened	None	-
Bombus crotchii	Crotch bumble bee	None	None	-
Bombus pensylvanicus	American bumble bee	None	None	-
Antilocapra americana	pronghorn	None	None	-
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	Threatened	-
Dipodomys ingens	giant kangaroo rat	Endangered	Endangered	-
Perognathus inornatus	San Joaquin pocket mouse	None	None	-
Mustela frenata xanthogenys	San Joaquin long-tailed weasel	None	None	-
Taxidea taxus	American badger	None	None	SSC
Ammospermophilus nelsoni	Nelsons antelope squirrel	None	Threatened	-
Lasiurus cinereus	hoary bat	None	None	-
Myotis yumanensis	Yuma myotis	None	None	-
Anniella pulchra	Northern California legless lizard	None	None	SSC
Masticophis flagellum ruddocki	San Joaquin coachwhip	None	None	SSC
Gambelia sila	blunt-nosed leopard lizard	Endangered	Endangered	FP
Emys marmorata	western pond turtle	None	None	SSC
Thamnophis gigas	giant gartersnake	Threatened	Threatened	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC

Sources:
California Department of Fish and Wildlife. 2022. California Natural Diversity Data Base, California Department of Fish and Wildlife Sacramento, CA. Topographic quadrangles: Charleston, Delta Ranch, Dos Palos, Ingomar, Los Banos, Ortigalita Peak NW, San Luis Ranch, Turner Ranch, and Volta.

Abbreviations
FP Federally Protected
SSC State Imperiled. At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
WL California Department of Fish and Wildlife Watch List
Candidate: Taxa proposed for listing as Threatened or Endangered under the federal Endangered Species Act of 1973.

Scientific Name	Common Name	Federal Status	State Status	CA Rare Plant
Sagittaria sanfordii	Sanfords arrowhead	None	None	1B.2
Eryngium racemosum	Delta button-celery	None	Endangered	1B.1
Centromadia parryi ssp. rudis	Parrys rough tarplant	None	None	4.2
Lasthenia chrysantha	alkali-sink goldfields	None	None	1B.1
Lasthenia ferrisiae	Ferris goldfields	None	None	4.2
Lasthenia glabrata ssp. coulteri	Coulters goldfields	None	None	1B.1
Senecio aphanactis	chaparral ragwort	None	None	2B.2
Trichocoronis wrightii	Wrights trichocoronis	None	None	2B.1
Amsinckia furcata	forked fiddleneck	None	None	4.2
Caulanthus lemmonii	Lemmons jewelflower	None	None	1B.2
Streptanthus insignis	Arburua Ranch jewelflower	None	None	1B.2
Atriplex cordulata var. cordulata	heartscale	None	None	1B.2
Atriplex coronata var. coronata	crownscale	None	None	4.2
Atriplex coronata var. vallicola	Lost Hills crownscale	None	None	1B.2
Atriplex minuscula	lesser saltscale	None	None	1B.1
Atriplex persistens	vernal pool smallscale	None	None	1B.2
Euphorbia hooveri	Hoovers spurge	Threatened	None	1B.2
Astragalus tener var. tener	alkali milk-vetch	None	None	1B.2
Chloropyron molle	hispid salty birds-beak	None	None	1B.1
Neostapfia colusana	Colusa grass	Threatened	Endangered	1B.1
Puccinellia simplex	California alkali grass	None	None	1B.2
Leptosiphon ambiguus	serpentine leptosiphon	None	None	4.2
Navarretia prostrata	prostrate vernal pool navarretia	None	None	1B.2
Eriogonum nudum var. indictum	protruding buckwheat	None	None	4.2
Stuckenia filiformis ssp. alpina	northern slender pondweed	None	None	2B.2
Androsace elongata ssp. acuta	California androsace	None	None	4.2
Delphinium recurvatum	recurved larkspur	None	None	1B.2
Myosurus minimus ssp. apus	little mousetail	None	None	3.1

Abbreviations:
1B.1 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Endangered in California
1B.2 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Endangered in California.
1B.3 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Not Very Endangered in California
2B.1 California Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Seriously Endangered
2B.2 Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Fairly Endangered in California

Appendix 3

Los Banos Unified School District

Early Learning Center Project

Cultural Resources: CHRIS and NAHC Letters

CENTRAL CALIFORNIA INFORMATION CENTER
California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 5/23/2023

Records Search File #: 12548I
Project: Los Banos Unified School District Transitional Kindergarten Center, 4.58-acres SW corner of East B Street and Place Road, Los Banos

Nicole Hoke
O'Dell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
559-760-3824 nicole@odellplanning.com

Dear Ms. Hoke:

We have conducted a non-confidential extended records search as per your request for the above-referenced project area located on the Los Banos USGS 7.5-minute quadrangle map in Merced County.

Search of our files includes review of our maps for the specific project area and the immediate vicinity of the project area, and review of the following:

National Register of Historic Places (NRHP)
California Register of Historical Resources (CRHR)
California Inventory of Historic Resources (1976)
California Historical Landmarks
California Points of Historical Interest listing
Office of Historic Preservation Built Environment Resource Directory (BERD) and the Archaeological Resources Directory (ARD)
Survey of Surveys (1989)
Caltrans State and Local Bridges Inventory
General Land Office Plats
Other pertinent historic data available at the CCaIC for each specific county

The following details the results of the records search:

Prehistoric or historic resources within the project area:

- There are no formally recorded prehistoric or historic archaeological resources or historic buildings and structures within the project area.

- The General Land Office Survey Plat for T10S R10E (1855) does not show any historic features within Section 13.

- The 1921, 1947, 1960 editions of the Los Banos USGS quadrangle do not show any historic features within the project area. The 1960 edition shows the street layout west of the project area.

Prehistoric or historic resources within the immediate vicinity of the project area: None has been formally reported to the Information Center.

Resources that are known to have value to local cultural groups: None has been formally reported to the Information Center.

Previous investigations within the project area: None has been formally reported to the Information Center.

Recommendations/Comments:

Please be advised that a historical resource is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. Since the project area has not been subject to previous investigations, there may be unidentified features involved in your project that are 45 years or older and considered as historical resources requiring further study and evaluation by a qualified professional of the appropriate discipline.

If the current project does not include ground disturbance, further study for archaeological resources is not recommended at this time. If ground disturbance is considered a part of the current project, we recommend further review for the possibility of identifying prehistoric or historic-era archaeological resources.

If the proposed project contains buildings or structures that meet the minimum age requirement (45 years in age or older) it is recommended that the resource/s be assessed by a professional familiar with architecture and history of the county. Review of the available historic building/structure data has included only those sources listed above and should not be considered comprehensive.

If at any time you might require the services of a qualified professional the Statewide Referral List for Historical Resources Consultants is posted for your use on the internet at http://chrisinfo.org

If archaeological resources are encountered during project-related activities**,** work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources.

If human remains are discovered, California Health and Safety Code Section 7050.5 requires you to protect the discovery and notify the county coroner, who will determine if the find is Native American. If the remains are recognized as Native American, the coroner shall then notify the

Native American Heritage Commission (NAHC). California Public Resources Code Section 5097.98 authorizes the NAHC to appoint a Most Likely Descendant (MLD) who will make recommendations for the treatment of the discovery.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the State Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

We thank you for contacting this office regarding historical resource preservation. Please let us know when we can be of further service. Thank you for sending the signed **Access Agreement Short Form.**

Note: Billing will be transmitted separately via email from the Financial Services office ($150.00), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

https://commerce.cashnet.com/ANTHROPOLOGY

Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 13, 2023

Daniel Brannick
Odell Planning & Research, Inc.

Via Email to: daniel@odellplanning.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Transitional Kindergarten ("TK") Center Project, Merced County

Dear Mr. Brannick:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Merced County
3/13/2023

Tribe / Contact	Cultural Affiliation
Amah Mutsun Tribal Band Valentin Lopez, Chairperson P.O. Box 5272 Galt, CA, 95632 Phone: (916) 743 - 5833 vlopez@amahmutsun.org	Costanoan Northern Valley Yokut
Dumna Wo-Wah Tribal Government Robert Ledger, Chairperson 2191 West Pico Ave. Fresno, CA, 93705 Phone: (559) 540 - 6346 ledgerrobert@ymail.com	Foothill Yokut Mono
North Valley Yokuts Tribe Timothy Perez, P.O. Box 717 Linden, CA, 95236 Phone: (209) 662 - 2788 huskanam@gmail.com	Costanoan Northern Valley Yokut
North Valley Yokuts Tribe Katherine Perez, Chairperson P.O. Box 717 Linden, CA, 95236 Phone: (209) 887 - 3415 canutes@verizon.net	Costanoan Northern Valley Yokut
Santa Rosa Rancheria Tachi Yokut Tribe Leo Sisco, Chairperson P.O. Box 8 Lemoore, CA, 93245 Phone: (559) 924 - 1278 Fax: (559) 924-3583	Southern Valley Yokut
Southern Sierra Miwuk Nation Sandra Chapman, Chairperson P.O. Box 186 Mariposa, CA, 95338 Phone: (559) 580 - 7871 sandra47roy@gmail.com	Miwok Northern Valley Yokut Paiute
Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, CA, 93258 Phone: (559) 781 - 4271 Fax: (559) 781-4610 neil.peyron@tulerivertribe-nsn.gov	Yokut
Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas, CA, 93906 Phone: (831) 443 - 9702 kwood8934@aol.com	Foothill Yokut Mono

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Transitional Kindergarten ("TK") Center Project, Merced County.

Appendix 4

Los Banos Unified School District

Early Learning Center Project

Energy Impact Assessment

ENERGY IMPACT ASSESSMENT

FOR

LOS BANOS UNIFIED SCHOOL DISTRICT TRANSITIONAL KINDERGARTEN PROJECT

LOS BANOS, CA

JANUARY 2024

PREPARED FOR:

ODELL PLANNING & RESEARCH, INC.
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LIST OF COMMON TERMS & ACRONYMS

°F	Fahrenheit
AB	Assembly Bill
AFV	Alternative Fuel Vehicle
APS	Alternative Planning Strategy
ARB	California Air Resource Board
BSC	Building Standards Commission
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CBC	California Building Code
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO_2	Carbon Dioxide
CPUC	California Public Utilities Commission
EAP	Energy Action Plan
EMFAC	Emissions Factor
EO	Executive Order
EPAct	Energy Policy Act
GHG	Greenhouse Gas
kBTU	Kilo British Thermal Units
kWh	Kilowatt Hour
MMBTU	Million British Thermal Units
mpg	Miles per Gallon
MPO	Metropolitan Planning Organization
NHSTA	National Highway Traffic Safety Administration
PG&E	Pacific Gas and Electric
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SAF	State Alternative Fuel
SB	Senate Bill
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle Mile Traveled

INTRODUCTION

This report describes the existing environment in the project vicinity and identifies energy impacts associated with the proposed Los Banos District Transitional Kindergarten Project (project). Project impacts are evaluated relative to applicable California Environmental Quality Act (CEQA) thresholds of significance. This report also provides a summary of the applicable regulatory framework pertaining to energy use.

Proposed Project Summary

The proposed project site is located on an approximately 28.3-acre site (Assessor's Parcel Numbers [APNs] (428-030-022) and located in the City of Los Banos within Merced County, California. The site consists of vacant undeveloped land, located to the south of the project site is the Los Banos Junior High School campus. The area surrounding the project site consists of existing residential homes. The proposed Los Banos District Transitional Kindergarten is approximately 4.58 acres in size.

The project includes the construction and operation of a transitional kindergarten (TK) with 19 classrooms to serve 300 students for the Los Banos Unified School District (LBUSD). 15 of these classrooms will be used for TK students and four will be used for Pre-K students. The proposed classrooms would be located along the southern project boundary. The project would include several outdoor play areas, 2 shared workout rooms, onsite drainage ditches and an onsite trash enclosure. Additionally, the project includes landscaping features, and new concrete paved areas. The project's vicinity is depicted in Figure 1. The project's location is depicted in Figure 2. The project's site plan is depicted in Figure 3.

The proposed project would also include the construction of a staff parking lot including a bus drop-off/loading area and a parent/visitor parking lot with a drop-off area. The entrance to the parent/visitor lot will be accessible from East B Street, parent/visitor traffic must exit on Place Road, limited to right turn (southbound) movements.

If approved, project construction would begin in summer of 2024 and anticipated to be completed and operational by fall of 2025.

ENERGY FUNDAMENTALS

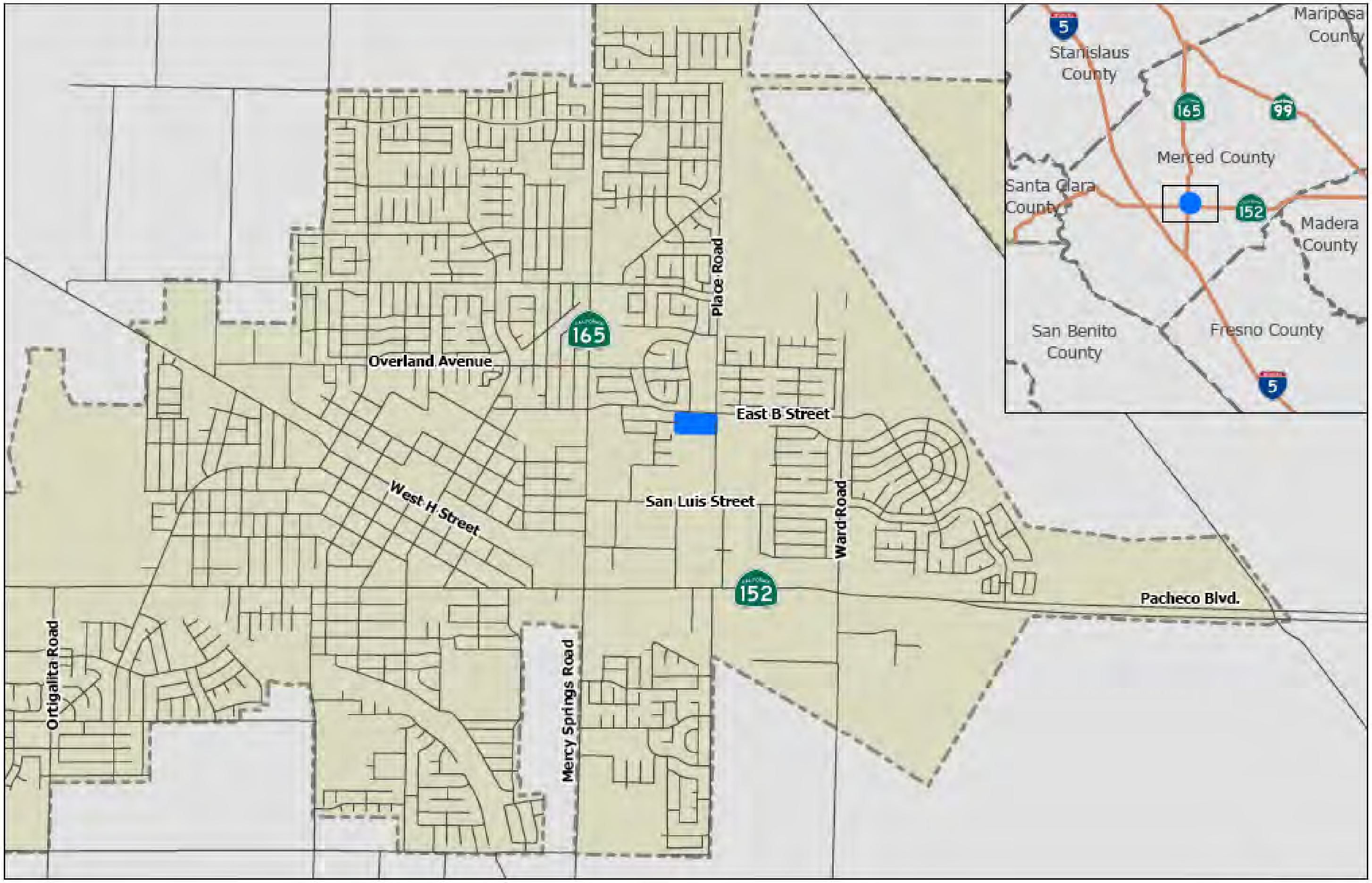
Energy use is typically associated with transportation, construction, and the operation of land uses. Transportation energy use is generally categorized by direct and indirect energy. Direct energy relates to energy consumption by vehicle propulsion. Indirect energy relates to the long-term indirect energy consumption of equipment, such as maintenance activities. Energy is also consumed by construction and routine operation and maintenance of land use. Construction energy relates to a direct one-time energy expenditure primarily associated with the consumption of fuel use to operate construction equipment. Energy-related to land use is normally associated with direct energy consumption for heating, ventilation, and air conditioning of buildings.

EXISTING SETTING

Energy Resources

Energy services are provided by Pacific Gas and Electric Company (PG&E). PG&E energy resources consist largely of natural gas, nuclear, hydropower, and renewable sources such as solar and wind. The primary use of energy sources is for electricity to operate buildings. PG&E's power mix is depicted in Figure 4.

Figure 1. Project Vicinity



Project Location **Figure 1**

Transitional Kindergarten Center Project
Los Banos Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Project Site
Los Banos City Limits

0 1,000 2,000 4,000 Feet

N

Figure 2. Project Site Location

Project Site **Figure 2**

Transitional Kindergarten Center Project
Los Banos Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Project Site

1" = 500'

N

Figure 3. Proposed Project Site Plan

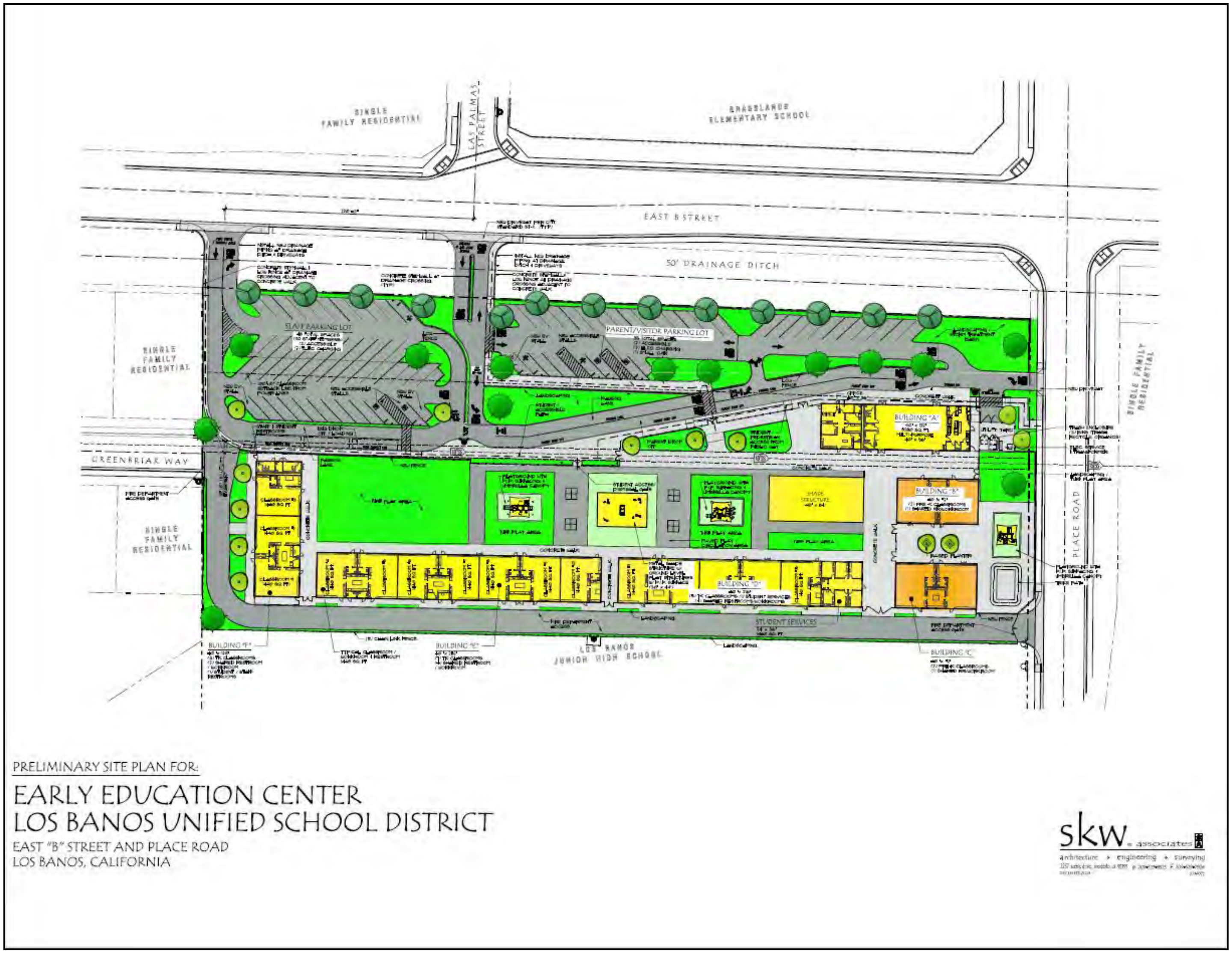
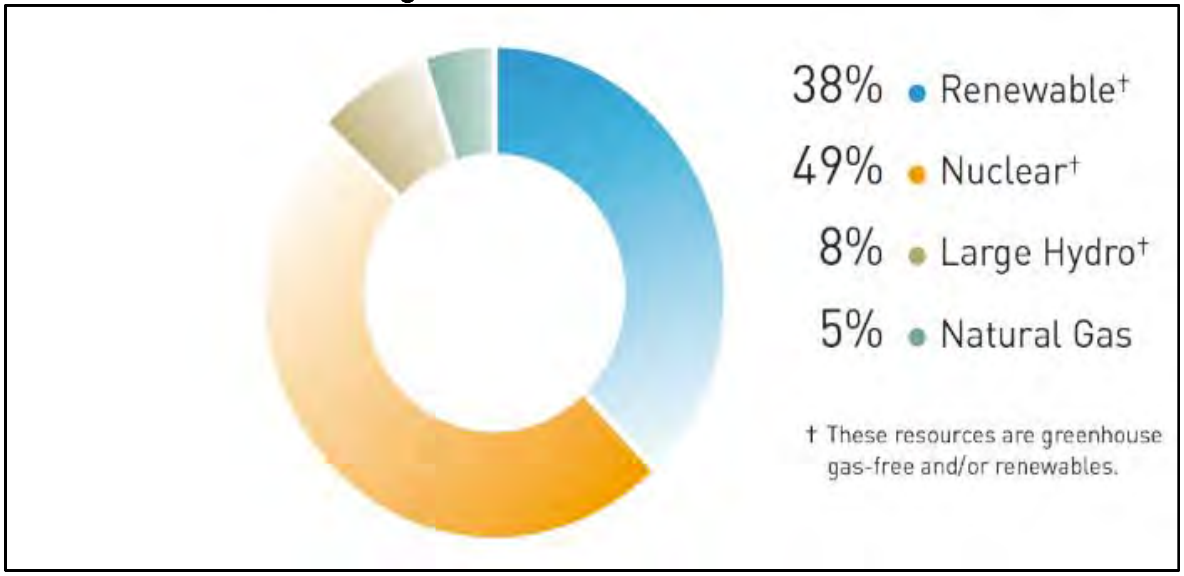


Figure 4. PG&E 2022 Power Mix



Source: PG&E 2023

Regulatory Framework

Federal

<u>Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks and Corporate Average Fuel Economy Standards</u>

In October 2012, the United States Environmental Protection Agency (U.S. EPA) and National Highway Traffic Safety Administration (NHSTA), on behalf of the United States Department of Transportation (U.S. DOT), issued final rules to further reduce greenhouse gas (GHG) emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond. NHTSA's CAFE standards have been enacted under the Energy Policy and Conservation Act since 1978. This national program requires automobile manufacturers to build a single light-duty national fleet that meets all requirements under both federal programs and the standards of California and other states. This program would increase fuel economy to the equivalent of 54.5 miles per gallon (mpg) limiting vehicle emissions to 163 grams of carbon dioxide (CO_2) per mile for the fleet of cars and light-duty trucks by the model year 2025.

In January 2017, U.S. EPA Administrator Gina McCarthy signed a Final Determination to maintain the current GHG emissions standards for the model year 2022-2025 vehicles. However, on March 15, 2017, U.S. EPA Administrator Scott Pruitt and U.S. DOT Secretary Elaine Chao announced that U.S. EPA intends to reconsider the Final Determination. On April 2, 2018, U.S. EPA Administrator Scott Pruitt officially withdrew the January 2017 Final Determination, citing information that suggests that these current standards may be too stringent due to changes in key assumptions since the January 2017 Determination. According to the U.S. EPA, these key assumptions include gasoline prices and overly optimistic consumer acceptance of advanced technology vehicles. The April 2, 2018, notice is not U.S. EPA's final agency action. The U.S. EPA intends to initiate rulemaking to adopt new standards. Until that rulemaking has been completed, the current standards remain in effect. (U.S. EPA 2017, U.S. EPA 2018).

<u>Energy Policy and Conservation Act</u>

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the United States would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the NHSTA, which is part of the U.S. DOT, is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The CAFE program, administered by U.S. EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. U.S. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the U.S. DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992

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

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the Act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

State

Integrated Energy Policy Report

The California Energy Commission (CEC) is responsible for preparing a biennial report examining energy issues and trends facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources.

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Assembly Bill 32: Climate Change Scoping Plan and Update

In October 2008, ARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reach the 2050 goals (ARB 2014). The most recent update released by ARB is the 2017 Climate Change Scoping Plan, which was released in November 2017. The measures identified in the 2017 Climate Change Scoping Plan have the co-benefit of increasing energy efficiency and reducing California's dependency on fossil fuels.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels (SAF) Plan in partnership with ARB and in consultation with other state, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing significant degradation of public health and environmental quality.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resource Board (ARB) prepared and adopted a joint agency report in 2003, Reducing California's Petroleum Dependence. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita vehicle miles traveled (VMT) (ARB 2003). Further, in response to the CEC's 2003 and 2005 Integrated Energy Policy Reports, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use. A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2020.

Senate Bill 350: Clean Energy and Pollution Prevention Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires a doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land use allocation in that MPOs regional transportation plan (RTP). ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.

Senate Bill 1078: California Renewables Portfolio Standard Program

Senate Bill (SB) 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum of 20 percent of their supply from renewable sources by 2017. This SB will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order (EO) S-14-08, which set the Renewables Portfolio Standard (RPS) target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. EO S-14-08 was later superseded by EO S-21-09 on September 15, 2009. EO S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State to come from renewable energy by 2020. Statute SB X1-2 superseded this EO in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

Senate Bill 32 and Assembly Bill 197 of 2016

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target. Achievement of these goals will have the co-benefit of increasing energy efficiency and reducing California's dependency on fossil fuels.

Executive Order S-06-06

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The EO also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- increase environmentally- and economically-sustainable energy production from organic waste;
- encourage the development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications;
- create jobs and stimulate economic development, especially in rural regions of the state; and
- reduce fire danger, improve air and water quality, and reduce waste.

In 2019, 2.87 percent of the total electrical system power in California was derived from biomass (CEC 2020).

Executive Order B-48-18: Zero Emission Vehicles

In January 2018, Governor Brown signed EO B-48-18 which required all State entities to work with the private sector to put at least 5-million zero-emission vehicles on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 zero-emissions chargers by 2025. In addition, State entities are also required to continue to partner with local and regional governments to streamline the installation of zero-emission vehicle infrastructure. Additionally, all State entities are to support and recommend policies and actions to expand infrastructure in homes, through the Low-Carbon Fuel Standard.

Energy Action Plan

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 EAP II, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The CBC is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 MMT of CO_2e by 2020.

The previously adopted 2019 Building Energy Efficiency Standards focused on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under these standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades, when compared to the older 2016 building standards (CEC 2017).

The 2022 Building Energy Efficiency Standards (2022 Standards), which were most recently approved in December 2021, encourage efficient electric heat pumps, establish electric-ready requirements when natural gas is installed and support the future installation of battery storage, and further expand solar photovoltaic and battery storage standards. The 2022 Standards extend solar PV system requirements, as well as battery storage capabilities for select land uses, including high-rise multi-family and non-residential land uses, such as office buildings, schools, restaurants, warehouses, theaters, grocery stores, and more. Depending on the land use and other factors, solar systems should be sized to meet targets of up to 60 percent of the structure's loads. These new solar requirements will become effective on January 1, 2023, and contribute to California's goal of reaching net-zero carbon footprint by 2045 (CEC 2023).

Advanced Clean Cars Program

In January 2012, ARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires a battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016 (ARB 2016).

Advanced Clean Cars II Program

The Advanced Clean Cars II regulations will rapidly scale down light-duty passenger car, pickup truck and SUV emissions starting with the 2026 model year through 2035.

The regulations are two-pronged. First, it amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, and relies on currently available advanced vehicle technologies, including battery-electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet air quality and climate change emissions standards. These amendments support Governor Newsom's 2020 EO N-79-20 that requires all new passenger vehicles sold in California to be zero emissions by 2035. Second, the Low-emission Vehicle Regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions.

California enjoys the largest zero-emission vehicle market in the nation with more than 16% of new vehicles sold being zero-emissions or plug-in hybrids. The regulations will substantially reduce air pollutants that threaten public health and cause climate change. While further developing the zero-emission vehicle market, the regulations also take additional steps to clean up internal combustion engines and will provide public health benefits of at least $12 billion over the life of the regulations by reducing premature deaths, hospitalizations and lost workdays associated with exposure to air pollution (ARB 2023).

Local

City of Los Banos General Plan

The City of Los Banos General Plan contains several guiding policies and implementing actions to increase energy efficiency within the city. Applicable general plan energy policies include, but are not limited to, the following (Los Banos 2042):

- Policy P-P12.3 Encourage the use of low-emission building, such as HVAC equipment, and operation equipment for all new residential and commercial development.
- Policy P-P12.4 Provide incentives and/or partner with the Community Choice Aggregation agency for improving energy efficiency in existing buildings.
- Policy PFS-P7.5 Pursue opportunities to require or encourage on-site energy storage, such as on-site batteries, within facilities and developments.

City of Los Banos Municipal Code

The City of Los Banos, California Municipal Code Title 8 Building Regulations Chapter 1 Building Codes outlines current codes and standards required by the city. Revelvant regulations and codes pertaining to energy impacts associated with the proposed project include but are not limited to the following:

- Sec. 8-1.01 Adoption of the California Building Code 2022 Edition.
- Sec. 8-1.04 Adoption of the California Energy Code 2022 Edition.
- Sec. 8-1.07 Adoption of California Electrical Code 2022 Edition.
- Sec. 8-1.11 Adoption of the California Existing Building Code 2022 Edition.
- Sec. 8-1.12 Adoption of the California Green Building Standards Code 2022 Edition.

IMPACT ANALYSIS

Thresholds of Significance

In accordance with Appendix F and G of the California Environmental Quality Act (CEQA) Guidelines, energy use impacts associated with the proposed project would be considered significant if it would:

a) Result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or

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

The CEQA Guidelines, Appendix F, requires environmental analyses to include a discussion of potential energy impacts associated with a proposed project. Where necessary, CEQA requires that mitigation measures be incorporated to reduce the inefficient, wasteful, or unnecessary consumption of energy. The State CEQA Guidelines, however, do not establish criteria that define inefficient, wasteful, or unnecessary consumption. Compliance with the State's building standards for energy efficiency would result in decreased energy consumption for proposed buildings. As a result, this analysis includes an evaluation of electricity and natural gas usage requirements associated with future development, as well as energy requirements associated with the use of on-road and off-road vehicles. The degree to which the proposed project would comply with existing energy standards, as well as applicable regulatory requirements and policies related to energy conservation was also taken into consideration for the evaluation of project-related energy impacts.

Methodology

Construction Impacts

Regarding energy use (e.g., fuel use) during construction, it is assumed that only diesel fuel would be used in off-road construction equipment. On-road vehicles for hauling materials and worker commute trips assumed a mix of diesel and gasoline fuel use. Construction schedules, equipment numbers, horsepower ratings, and load factors were used to calculate construction-related fuel use, based on default assumptions contained in the California Emissions Estimator Model (CalEEMod), version 2022.1.1.21. To be conservative, diesel fuel use was estimated based on a factor of 0.05 gallons of diesel fuel per horsepower-hour derived from the South Coast Air Quality Management District's (SCAQMD) *CEQA Air Quality Handbook* (SCAQMD 1993). Actual fuel usage would likely be less. Energy use was quantified for site preparation, grading, building construction, paving and architectural coating. Construction of the project is expected to start in 2024 and end in 2025. Energy usage calculations and assumptions are included in Appendix A.

Operational Impacts

The long-term operation of the proposed project would require electricity and natural gas usage for equipment operations, lighting, and water conveyance. Project operation would include the consumption of diesel and gasoline fuel from on-road vehicles and landscape maintenance equipment. Building energy use was estimated using CalEEMod, version 2022.1.1.21. With continued improvements in building energy efficiencies, energy use in future years would be less. Transportation fuel-use estimates were calculated by applying average fuel usage rates per vehicle mile to VMT associated with the proposed project. Annual energy usage was quantified based on CalEEMod default energy intensity factors for PG&E. Average fuel usage rates by vehicle class, fuel type (e.g., diesel, gasoline, electric, and natural gas), and calendar year were obtained from Merced County emission inventory derived from ARB's Emissions Factors (EMFAC) 2021, version 1.0.2 model. Energy usage calculations and assumptions are included in Appendix A.

Project Impacts and Mitigation Measures

Impact E-A.	Would the project result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Implementation of the proposed project would increase electricity, diesel, gasoline, and natural gas consumption associated with construction activities, as well as long-term operational activities. Energy consumption associated with short-term construction and long-term operational activities are discussed in greater detail, as follows:

Construction-Related Energy Consumption

Energy consumption would occur during construction, including fuel use associated with the on-site operation of off-road equipment and vehicles traveling to and from the construction site. Table 1 summarizes the levels of energy consumption associated with project construction. As depicted, the operation of off-road construction equipment would use an estimated total of 50,189 gallons of diesel. On-road vehicles would use an estimated total of 1,403 gallons of gasoline and 50,384 gallons of diesel. In total, construction fuel use would equate to approximately 7,091 million British thermal units (MMBTU). Construction equipment use and associated energy consumption would be typical of that commonly associated with the construction of new land uses. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes in accordance with CARB's In-Use Off-Road Diesel regulation. Energy use associated with construction of the proposed project would be temporary and would not be anticipated to result in the need for additional capacity, nor would construction be anticipated to result in increased peak-period demands for electricity. As a result, project construction would not be anticipated to require the use of construction equipment that would be less energy efficient than those commonly used for the construction of similar facilities. Construction of the proposed project would not result in an inefficient, wasteful, or unnecessary consumption of energy. This impact would be considered less than significant.

Table 1. Construction Energy Consumption

Source	Total Fuel Use (gallons)	Total MMBTU
Construction		
Off-Road Equipment Use (Diesel)	50,189	6,895
On-Road Vehicles (Gasoline)	1,403	169
On-Road Vehicles (Diesel)	195	27
	Total:	7,091

MMBTU = Million British thermal units

Fuel use was calculated based, in part, on default construction schedules, estimated equipment use, and vehicle trips derived from the CalEEMod emissions modeling conducted for this project.

Refer to Appendix A for modeling assumptions and results.

Operational Mobile-Source Energy Consumption

Operational mobile-source energy consumption would be primarily associated with daily travel by employees and students. Energy use associated with vehicle trips are discussed in greater detail, as follows:

Table 2 summarizes the annual fuel use associated with the operation of the proposed project. As noted in Table 2, vehicle trips associated with the proposed land uses would consume an estimated 32,519 gallons of diesel and 39,014 gallons of gasoline on an annual basis. The development of increasingly efficient automobile engines and the retirement of older less efficient vehicles from the fleet would result in increased energy efficiency and energy conservation in future years. The proposed project would not result in increased fuel usage that would be considered unnecessary, inefficient, or wasteful. This impact would be considered less than significant.

Table 2. Operational Fuel Consumption

Source	Annual Fuel Use (gallons)	Annual MMBTU
Operation – 2026		
Mobile Fuel (Diesel)	32,519	4,468
Mobile Fuel (Gasoline)	39,014	4,695
	Total:	9,162

MMBTU = Million British thermal units

Refer to Appendix A for modeling assumptions and results.

Operational Building-Use Energy Consumption

The proposed project would result in increased electricity and natural gas consumption associated with the long-term operation of onsite facilities. Estimated electricity and natural gas consumption associated with the proposed facilities are summarized in Table 3. As depicted operation of the proposed project would result in the annual consumption of approximately 241,988 kilowatt hours (kWh) of electricity, 5,474 kWh of water, and 1,560,254 kilo British thermal units (kBTU) of natural gas. In total, the proposed development would consume an annual equivalent total of approximately 2,405 MMBTU.

The project design includes measures to reduce overall energy use, water use, and waste generation. Some of these features include the installation of energy efficient appliances, high efficiency exterior lighting, low flow water fixtures, water efficient landscaping and irrigation, as well as LED interior lighting and high efficiency HVAC systems. In addition, the project will also include solar photovoltaic systems on classroom roofs. Predicted KWh/year energy generated by these systems is speculative at this time and, to be conservative, has not been included in operational energy use estimates. These improvements would help to further reduce the project's energy use. The project would be subject to energy conservation requirements in the CEC (Title 24, Part 6, of the California Code of Regulations, California's Energy Efficiency Standards for Residential and Nonresidential Buildings) and the California Green Building Standards Code (CALGreen) (Title 24, Part 11 of the California Code of Regulations). Adherence to Title 24 requirements measures would ensure that the project would not result in wasteful and inefficient use of non-renewable resources due to building operation. For this reason, this impact would be considered less than significant.

Table 3. Operational Electricity, Water, and Natural Gas Consumption

Source	Annual Energy Use	Annual MMBTU
Operation – 2026		
Electricity (kWh)	241,988	826
Water (kWh)	5,474	19
Natural Gas Use (kBTU)	1,560,254	1,560
	Total:	2,405

MMBTU = Million British thermal units; kWh = Kilowatt hour; kBTU = Kilo British thermal unit

Impact E-B. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project would be required to be in full compliance with the CBC, including applicable green building standards and building energy efficiency standards. The project would not conflict with other goals and policies set forth in the general plan pertaining to renewable energy and energy efficiency. Therefore, the proposed project would not conflict with state or local plans for renewable energy or energy efficiency, this impact would be considered less than significant.

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APPENDIX A

ENERGY MODELING

Energy Use Summary Operational Year 2026

Construction Energy Use

	Gallons	Annual MMBTU
Off-Road Equipment Fuel (Diesel)	50,189	6,895
On-Road Vehicle Fuel (Gasoline)	1,403	169
On-Road Vehicle Fuel (Diesel)	195	27
	Total:	7,091

Operational Fuel Use

	Gallons	Annual MMBTU
Mobile Fuel (Diesel)	32,519	4,468
Mobile Fuel (Gasoline)	39,014	4,695
	Total:	9,162

Operational Electricity & Natural Gas Use

	Annual Energy	Annual MMBTU
Electricity (kWh/yr, MMBTU)	241,988	826
Water Use, Treatment & Conveyance (kWh/Yr, MMBTU)	5,474	19
Natural Gas (kBTU/yr, MMBTU)	1,560,254	1,560
	Total:	2,405

Construction Equipment Fuel Use

OFF-ROAD EQUIPMENT FUEL USE

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Fuel Diesel (Gallons)
Construction									
Demolition	0	Concrete Saw	33	1	8	0	0.73	0.05	0
		Excavators	36	3	8	0	0.38	0.05	0
		Rubber Tired Dozers	367	2	8	0	0.4	0.05	0
Site Prep	20	Rubber Tired Dozers	367	3	8	20	0.4	0.05	3523
		Tractors/Loaders/Backhoes	84	4	8	20	0.37	0.05	995
Grading	45	Graders	148	1	8	45	0.41	0.05	1092
		Rubber Tired Dozers	367	1	8	45	0.4	0.05	2642
		Excavators	36	2	8	45	0.38	0.05	492
		Scraper	423	2	8	45	0.48	0.05	7309
		Tractors/Loaders/Backhoes	84	2	8	45	0.37	0.05	1119
Construction	300	Cranes	367	1	7	300	0.29	0.05	11175
		Forklifts	82	3	8	300	0.2	0.05	5904
		Generator Sets	14	1	8	300	0.74	0.05	1243
		Tractors/Loaders/Backhoes	84	3	7	300	0.37	0.05	9790
		Welders	46	1	8	300	0.45	0.05	2484
Paving	35	Pavers	81	2	8	35	0.42	0.05	953
		Paving Equipment	89	2	8	35	0.36	0.05	897
		Rollers	36	2	8	35	0.38	0.05	383
Arch Coating	35	Air Compressor	37	1	6	35	0.48	0.05	186
Equipment usage assumptions based on default assumptions contained in CalEEMod.						**Total Diesel Fuel Use (Gallons):**			50189
						Number of Construction Years:			2
						Average Diesel Fuel Use/Year:			25094
						BTU/Gallon:			137381
						BTU:			6895008140
						MMBTU:			6895

Construction Fuel Use - On-Road Vehicles

Activity	Demolition	Site Prep	Grading	Construction	Paving	Arch Coating	Total	LDA	LDT1	LDT2	MDV	HDV
Days	0	20	45	300	35	35						
Worker Trips	0	18	20	5	15	1						
Miles/Trip	18.5	10.85	10.85	10.85	10.85	10.85						
Total VMT	0	3906	9765	16275	5696.25	379.75	36022	12007.3	12007.3	12007.3	0	0
Vendor Trips	0	0	0	2	0	0						
Miles/Trip	4	4	4	8.27	4	4						
Total VMT	0	0	0	4962	0	0	4962	0	0	0	4962	0
Haul Trips	1	0	0	0	0	0						
Miles/Trip	20	20	20	20	20	20						
Total VMT	0	0	0	0	0	0	0	0	0	0	0	0

	Annual VMT	Gallons/Mile*	Gallons	BTU/gallon**		BTU	MMBTU
HDT	0	0.16437725	0	137381		0	0.00
LDA	12007	0.03346393	402	120333		48351305	48.35
LDT1	12007	0.04126195	495	120333		59618497	59.62
LDT2	12007	0.04208161	505	120333		60802815	60.80
MDV	4962	0.03931074	195	137381		26797524	26.80

**Gallons per mile based on year 2024 conditions for Riverside County. Derived from Emfac2021 (v1.0.2) Emissions Inventory.*

***Energy coefficient derived from US EIA.*

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2021 Fuel Rate Calculation	Fuel Consumption (1000 Gallons/Day)*		CVMT (Miles/Day)**			
	Diesel	Gasoline	Diesel	Gasoline		TOTAL
LDA	0.19658757	130.1552947	8935.016935	3889420.965		
LDT1	0.00222519	11.31344539	56.99916829	274185.9327		
LDT2	0.11032559	59.76312372	3834.216094	1420171.897		
MDV	0.94613718	71.00114105	24068.15879	1364994.562		
HDT***	212.700267	0.02536541	1293976.32	74.32455357		
Total	213.955543	272.2583702	1330870.711	6948847.681		8279718.393
Percent of Total			16.07%	83.93%		
LDA-Miles/Gallon	45.4505687	29.88292543				
LDA-Gallons/Mile	0.02200192	0.033463926				
LDT1-Miles/Gallon	25.6153938	24.23540516				
LDT1-Gallons/Mile	0.03903903	0.041261947				
LDT2-Miles/Gallon	34.7536413	23.76334784				
LDT2-Gallons/Mile	0.02877396	0.042081613				
MDV-Miles/Gallon	25.4383396	19.22496655				
MDV-Gallons/Mile	0.03931074	0.052015695				
HDT-Miles/Gallon	6.08356697	0.000341279				
HDT-Gallons/Mile	0.16437725	2930.153844				

**Fuel consumptions derived from EMFAC2021 (v1.0.2) for year 2024 conditions.*

***VMT derived from EMFAC2021 (v1.0.2) for year 2024 conditons.*

****HDT diesel engine T7 CAIRP construction, T7 single construction, T7 tractor construction. HDT gasoline engine T7IS.*

Fuel consumption and VMT based on Merced County.

Operational Fuel Use - Proposed Project Year 2026

LAND USE	Total Annual VMT
Single Family Housing	1,218,137

No additional VMT expected under project

	VMT	Gallons/Mile*	Gallons	BTU/gallon**	BTU	MMBTU
Diesel	227056	0.14322227	32519	137381	4467549193	4467.55
Gasoline	991081	0.03936514	39014	120333	4694678794	4694.68

Gallons per mile based on year 2026 conditions for Riverside County. Derived from Emfac2021 (v1.0.2) Emissions Inventory.

**Energy coefficient derived from US EIA.

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2021 Fuel Rate Calculation	Fuel Consumption (1000 Gallons/Day)*		CVMT (Miles/Day)**		
	Diesel	Gasoline	Diesel	Gasoline	
All Other Buses	0.14822698		1327.298335		
LDA	0.16834905	128.0196188	7812.915813	3982427.98	
LDT1	0.00161229	10.34249612	41.3919597	260457.3717	
LDT2	0.12226167	59.86051348	4438.923513	1498641.475	
LHD1	8.66539512	12.87339172	136438.9213	123134.1906	
LHD2	3.83858167	1.848765763	50052.69237	15657.95116	
MDV	0.88116606	65.78510236	22847.76135	1316976	
MH	0.18489151	0.831387878	1737.846696	3667.644479	
Motor Coach	0.66169774		3710.213431		
PTO	1.31735406		6450.406687		
SBUS	0.90268409	0.375897349	7410.315539	3774.314876	
T6 Ag					
T6 CAIRP heavy	0.80519987		8007.219449		
T6 CAIRP small	0.22924873		2095.36082		
T7 Other Port	1.18105015		7123.960775		
T7 POAK	2.8068485		16551.02948		
T6 instate heavy	2.56785321		23150.85129		
T6 instate small	5.28567117		45601.42056		
T6 OOS heavy	0.54414231		5467.495451		
T6 OOS small	0.13385665		1249.46504		
T6 Public	1.15593683		9153.348861		
T6 utility	0.26733633		2398.043305		
T7 Ag					
T7 CAIRP	58.4074359		366901.1253		
T7 CAIRP construction					
T7 NNOOS	67.8566517		442601.9849		
T7 NOOS	25.3934392		160789.4392		
T7 POLA	4.37178414		25419.60888		
T7 Public	1.93622622		10365.71261		
T7 Single	5.29905827		31341.50699		
T7 single construction					
T7 SWCV	1.36581495		3546.353059		
T7 tractor	40.825612		252278.2638		
T7 tractor construction					
T7 utility	0.22603873		1329.25679		
UBUS	0.40100814	0.722738055	3780.534043	3758.028624	
MCY		0.543960508		22837.84838	
OBUS		0.871081857		4232.165493	
T6TS		3.3889873		16379.40202	
T7IS		0.011412357		39.44192533	Total
Total	237.952433	285.4753536	1661420.668	7251983.814	8913404.482
Percent of Total			18.64%	81.36%	
Miles/Gallon	6.98215456	25.40318708			
Gallons/Mile	0.14322227	0.039365139			

*Fuel consumptions derived from EMFAC2021 (v1.0.2) for year 2026 conditons.

**VMT derived from EMFAC2017 (v1.0.2) for year 2026 conditons.

Fuel consumption and VMT based on Merced County.

Operational Electricity & Natural Gas Use Year 2026

	kWh/yr	MWh/Yr	BTU/kWh*	BTU	MMBTU
Electricity	241988	242	3412	825663056	826

*Energy coefficient derived from US EIA.
https://www.eia.gov/energyexplained/index.php?page=about_energy_units

	kBTU/yr			BTU	MMBTU
Natural Gas	1560254			1560254000	1560

*Energy coefficient derived from US EIA.
https://www.eia.gov/energyexplained/index.php?page=about_energy_units

Water Energy Use Year 2026

	WATER USE*		ELECTRIC INTENSITY FACTORS		ANNUAL ELECTRIC USE (kWh/Yr)		
	GAL/YR	MGAL/YR	INDOOR	OUTDOOR	INDOOR	OUTDOOR	TOTAL
ANNUAL INDOOR WATER USE	727272	0.85	3260		2758		5,474
ANNUAL OUTDOOR WATER USE	1341478	1.56		1741		2716	

*Based on estimated water use derived from CalEEMod.
**Energy coefficient derived from US EIA.
https://www.eia.gov/energyexplained/index.php?page=about_energy_units

BTU/kWh**	3412
BTU:	18677015
MMBTU:	18.68

Appendix 5

Los Banos Unified School District

Early Learning Center Project

Geotechnical Investigation and Geologic-Seismic Hazards Evaluation Report

TECHNICON
ENGINEERING SERVICES, INC.

GEOTECHNICAL INVESTIGATION AND GEOLOGIC-SEISMIC HAZARDS EVALUATION REPORT
PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER
LOS BANOS UNIFIED SCHOOL DISTRICT
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

Prepared for:

Los Banos Unified School District
646 West Pacheco Boulevard
Los Banos, California 93635

August 14, 2023

TES No. 230167.001

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING — CONSTRUCTION TESTING & INSPECTION

TECHNICON
ENGINEERING SERVICES, INC.

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GEOTECHNICAL & ENVIRONMENTAL ENGINEERING ▲ CONSTRUCTION TESTING & INSPECTION

Prepared For:

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646 West Pacheco Boulevard
Los Banos, California 93635

GEOTECHNICAL INVESTIGATION AND GEOLOGIC-SEISMIC HAZARDS EVALUATION REPORT PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER LOS BANOS UNIFIED SCHOOL DISTRICT EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA

TECHNICON PROJECT
TES No. 230167.001

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August 14, 2023

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LOS BANOS UNIFIED SCHOOL DISTRICT
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

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1 INTRODUCTION

1.1 GENERAL

This report presents the results of a geotechnical investigation for the proposed Transitional Kindergarten (TK) Center to be constructed at East B Street and Place Road in Los Banos, California. The purpose of the investigation was to explore and evaluate the subsurface conditions at the site to develop geotechnical recommendations for project design and construction.

The Vicinity Map, presented on Figure 1, shows the general location of the project and the Site Map, presented on Figure 2, shows the proposed improvements and the boring locations for this investigation.

A geologic-seismic hazards evaluation was prepared concurrently with the geotechnical investigation and is incorporated into Sections 3 through 5 of this report. References reviewed during preparation of the geologic and seismic hazards section of this report are listed in Section 10, “References”.

1.2 LOCATION

The project is located in northeastern Merced County, at the southwest corner of East B Street and Place Road in Los Banos, California. Based on the Los Banos, California 7 ½-minute quadrangle topographic map, the site lies within the southeast quarter of Section 13, R10E and T10S. The elevation of the site is approximately 105 feet above the Mean Sea Level. Based on the USGS 7½-minute topographic map, the site coordinates are approximately:

Latitude:	37.0661° N
Longitude:	120.8277° W

1.3 PROPOSED CONSTRUCTION

Based on the site plan provided we understand that the project involves the design and construction of a new TK Center. The proposed building/structure sizes are listed below.

- Office/MPR: 4,320 sq. ft.
- Building A: 2,880 sq. ft.
- Building B: 2,880 sq. ft.
- Building C: 8,640 sq. ft.
- Building D: 10,880 sq. ft.
- Building E: 4,800 sq. ft.
- (3) Playground Shade Structures: 1,320 sq. ft.
- Shade Structure: 3,360 sq. ft.

All buildings will be single story wood or metal framed structures, supported on shallow concrete foundations and slab-on-grade floors. We estimate that structural building loads will be approximately 3 kips per linear foot for strip loads, and 30 kips for column loads. Appurtenant improvements will be asphalt concrete pavements, concrete flatwork, turf and land landscape areas, and underground utilities. The site appears to relatively flat, therefore we estimate that cut and fill depths will be less than 2 feet.

1.4 PREVIOUS INVESTIGATION

TECHNICON previously performed a geotechnical investigation at the same site for the proposed alternative education school (reference file TES No. 160421.001, dated September 22, 2016) that included six (6) borings. Since the preparation of the referenced report, the project improvements have been relocated and additional borings were required. The previous boring logs are shown of the attached Site Map, Figure 2, and Previous Boring Logs, Appendix B.

1.5 PURPOSE AND SCOPE OF SERVICES

The purpose of the investigation and evaluation was to explore the site subsurface conditions and evaluate pertinent geologic and seismic data to develop recommendations and opinions to aid in project design, approval and construction. The scope of services consisted of a field exploration program, laboratory testing, design analysis, and preparation of this written report as described in **TECHNICON** proposal, dated March 9, 2023 (TES No. GP23-053). This

Geotechnical Investigation and Geologic-Seismic Hazards Evaluation Report includes the following:

- ❑ A description of the proposed project, including a vicinity map showing the location of the site and a site plan showing the exploration locations;
- ❑ A description of the site surface and subsurface conditions encountered during the field investigation, including boring logs;
- ❑ A summary of the field exploration and laboratory testing program;
- ❑ Comments on regional and site engineering geology and seismology;
- ❑ Determination of peak horizontal ground surface acceleration utilizing the mapped spectral acceleration parameters of the 2022 California Building Code (CBC);
- ❑ Discussion of geologic hazards affecting the site and project, including liquefaction, seismically induced settlement, landslides, flooding, etc;
- ❑ Site preparation and earthwork, including the use of on-site soils for engineered fill and recommended import fill specifications;
- ❑ Spread footing design, including bearing capacity of foundation soil for sustained loading and total combined loading, embedment depths and anticipated total settlements;
- ❑ Resistance of lateral loads, including passive pressure and coefficient of friction;
- ❑ Design of pier foundations including axial and lateral capacity;
- ❑ Design factors for earth retaining structures;
- ❑ Design of concrete slabs-on-grade for buildings, including modulus of subgrade reaction;
- ❑ Recommendations for asphalt concrete pavement design;
- ❑ Comments on the corrosion potential of on-site soil to buried metal and concrete;
- ❑ Comments to aid in the design of on-site drainage.

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The field exploration, conducted on July 7 and 13, 2023 consisted of drilling nine (9) exploratory test borings, and a site reconnaissance by a staff engineer. The test borings were drilled with a SIMCO 2800 truck-mounted drill rig using 4-inch diameter solid flight auger drilling techniques and extended to depths of 16.5, 21.5 and 51.5 feet below existing ground surface (bgs). Additionally, three (3) locations were drilled to a depth of 5 feet bgs for R-value sample collection. The approximate locations of the test borings and R-values are indicated on the Site Map, Figure 2.

The soils encountered in the borings were visually classified in the field and a continuous log was recorded. Relatively undisturbed samples were collected from the test borings at selected depths by driving a 2.5-inch I.D. split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic hammer free falling a distance of 30 inches. In addition, samples of the subsurface soils were obtained using a 1.4-inch I.D. standard penetrometer, driven 18 inches in accordance with ASTM D1586 test procedures. The sampler was used without liners. Resistance to sampler penetration was noted as the number of blows per foot over the last 12 inches of sampler penetration on the boring logs. The blow counts listed in the boring logs have not been corrected for the effects of overburden pressure, rod length, sampler size, boring diameter, or hammer efficiency. Bulk samples were also retained from auger cuttings of the near surface soils at selected test boring locations.

2.2 FIELD AND LABORATORY TESTING

Penetration rates, determined in general accordance with ASTM D1586, were used to aid in evaluating the consistency, compression, and strength characteristics of the foundation soils.

Laboratory tests were performed on selected near surface samples to evaluate their physical characteristics. The following laboratory tests were used to develop the design geotechnical parameters:

- ❑ Unit weight (ASTM D2937)
- ❑ Moisture Content (ASTM D2216)
- ❑ Sieve Analysis (ASTM C136)

- Expansion Index (ASTM D3080)
- Direct Shear (ASTM D3080)
- Soluble Sulfate and Soluble Chloride Contents (California Test Method No. 417 & 422)
- pH and Minimum Resistivity (California Test Method No. 643)
- Plasticity Index (ASTM D4318)
- Collapse Potential (ASTM D5333)
- Resistance Value (Caltrans Test Method No. 301)

The dry density and moisture content test results are shown on the boring logs in Appendix A. The soluble sulfate, soluble chloride, pH, and minimum resistivity are discussed in Section 7.7, “Corrosion Potential”. The remaining test results are provided in Appendix C.

3 SITE AND GEOLOGIC CONDITIONS

3.1 REGIONAL GEOLOGY

The site lies within the central east portion of the San Joaquin Valley, within the Great Valley geomorphic province of California (CGS, 2002). The Central Valley is between the Sierra Nevada geomorphic province to the east, and the Coastal Ranges geomorphic province to the west. The thick sequence of sediments that form the valley floor were eroded from these adjacent mountain regions and have been accumulating since the Jurassic period, about 160 million years.

The regional bedrock forms an asymmetrical trough, which is deepest near the western margin. The surficial sediments filling the trough include deposits of alluvial fans, flood plains, marshes, and lakes (Croft, 1972). The regional geologic map is presented on Figure 3.

3.2 AREA AND SITE GEOLOGY

The geology at the site is mapped as Holocene aged San Luis Ranch Alluvium (Qsl), described as fine to coarse grained fan, mudflow, terrace, and floodplain deposits. The soil subgrade characteristics encountered during the field investigation (i.e. soil type, blow count, etc.) are representative of these sediments. Figure 4 presents a site-specific geologic map of the project.

3.3 SURFACE CONDITIONS

At the time of investigation, the project site consisted of a vacant lot that supported a light to moderate growth of seasonal grasses and weeds. The site is generally bounded by E. B Street to the north, Place Road to the east, the existing Los Banos Junior High School to the south, and existing residences to the west. The overall site topography is relatively flat and approximately 1 foot above the elevation of East B Street.

3.4 EARTH MATERIALS

The subsurface soils consist of Holocene aged San Luis Ranch Alluvium (Qsl). The earth material encountered by the subsurface exploration consisted of sandy clay in the upper 8 to 13 feet and underlain by laterally discontinuous layers of silty sand, sandy silt, and poorly graded sand extending to the maximum depth explored, 51.5 feet bgs. The granular soils generally had a relative density of medium dense to dense and the fine grained soils had a consistency of medium stiff to hard.

The above is a general description of the earth material profile. A more detailed representation of the stratigraphy at the specific exploration locations is provided on the boring logs in Appendix A and the cross section on Figures 5 and 6.

3.5 GROUNDWATER CONDITIONS

Groundwater was encountered within boring B-7 at a depth of approximately 29 feet bgs. The California Department of Water Resources “Sustainable Groundwater Management Agency Data Viewer” Spring 2021, indicates the current groundwater depth in the area is on the order of 28 feet bgs. Research utilizing the California Department of Water Resources (DWR) website shows a nearby well with recorded data to be approximately 0.35 miles to the northeast (Well No. 10S10E12Q001M). Based on the groundwater elevation data collected at this well, recent groundwater measurements indicate the depth to groundwater was approximately 28 feet bgs in early 2015. Additionally a well recorded data approximately 0.30 miles to the northeast (Well No. 10S10E11R001M) that had historic high groundwater measurements in 1943 of approximately 5.8 feet bgs.

Groundwater conditions at the site could change in the future due to variations in rainfall, groundwater withdrawal, construction activities, or other factors not apparent at the time our test borings were made. However, groundwater is not anticipated to impact construction.

4 FAULTING AND SEISMICITY

4.1 HISTORICAL SEISMICITY

The project site is in a region traditionally characterized by moderate seismic activity. Seismic activity of the site was researched using information obtained from the U.S. Geologic Survey (USGS) and California Geologic Survey (CGS) websites, a catalog by the Advanced National Seismic System (ANSS) and Caltrans Acceleration Response Spectra (ARS).

Some of the historical earthquake events that caused significant shaking at the site are listed in Table 4.1-1.

TABLE 4.1-1

SIGNIFICANT REGIONAL EARTHQUAKE EVENTS

Earthquake Name	Year	Distance from Site (km)	Magnitude (Mw)
Great Fort Tejon	1857	95	7.9
Coalinga	1983	102	6.4
Owens Valley	1872	245	6.5
Ridgecrest	2019	323	7.1

Epicenters of significant earthquakes ($M \geq 5.5$) within the vicinity of the site are shown on Figure 7. Data for earthquakes that occurred from 1800 to 2022 have been obtained from the Significant California Earthquakes website (CGS, 2019) and a composite catalog by the ANSS. The ANSS catalog is a worldwide earthquake catalog which is created by merging the master earthquake catalogs from contributing ANSS member networks and then removing duplicate events, or non-unique solutions from the same event. The ANSS network includes the Northern and Southern California Seismic Networks, the Pacific Northwest Seismic Network, the University of Nevada, Reno Seismic Network, the University of Utah Seismographic Stations, and the United States National Earthquake Information Service. The earthquake database also consists of earthquake records between 1800 and 1900 from Seeburger and Bolt (1976) and Toppozada et al. (1978 and 1981).

4.2 FAULTS LOCAL TO THE PROPOSED SITE

The site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code).

The CGS Fault Activity Map of California (2010) was reviewed to determine if identified active faults are located on or near the subject site. According to the map, no identified active faults are located on or near the subject site. Locations of active and late Quaternary faults in the area with respect to the subject site are shown on Figure 8, Regional Fault Activity Map (obtained from the Fault Activity Map of California, Jennings, Bryant and Saucedo, 2010).

Based on review of published data and current understanding of the geologic framework and tectonic setting of the proposed improvements, the primary sources of seismic shaking at this site are listed in Table 4.2-1. The table also provides the fault type, distance from the site, and maximum moment magnitude (M_W). A major seismic event on these or other nearby faults may cause ground shaking at the site. Based on the deterministic ground acceleration, the San Andreas Fault, located west of the site, is considered the governing fault.

TABLE 4.2-1
PRIMARY SOURCES OF SEISMIC SHAKING

Fault Name	Fault Type	Distance from Site (miles)	Magnitude (Mw)
Great Valley	Thrust	6	7.1
Ortigalita	Right Lateral/ Strike Slip	15	6.7
Calaveras	Strike Slip	35	7.0
San Andreas	Right Lateral/ Strike Slip	36	7.4

4.3 SITE CLASS

Based on the field exploration, the site soil is classified as Site Class D as presented in ASCE 7-16 based on the average Standard Penetration Tests (N value) at the project site. Site Class D is defined as a stiff soil profile with shear wave velocities between 600 feet/sec and 1,200 feet/sec, or Standard Penetration Resistance (N) between 15 to 50 blows/foot, or undrained shear strength (S_u) between 1,000 to 2,000 psf for the upper 100 feet.

4.4 GENERAL PROCEDURE SEISMIC DESIGN CRITERIA

In accordance with CBC 1613A.2 a general procedure ground motion analysis was performed. USGS seismic design mapped values were obtained for the project site utilizing a Site Class D, and site coordinates from the Structural Engineers Association of California (SEAOC) website (http://seismicmaps.org). The values obtained are provided in the table below.

TABLE 4.4-1
2022 CBC/ASCE 7-16 GENERAL PROCEDURE GROUND MOTION PARAMETERS

Seismic Item	Design Value	Seismic Item	Design Value
Site Class	D	Seismic Design Category	D
S_S	1.178	S_{MS}	1.212
S_1	0.403	S_{M1}	0.764
Site Coefficient, F_v	1.897*	S_{DS}	0.808
Site Coefficient, F_a	1.029	S_{D1}	0.510
T_S	0.631		

*This value of F_v should only be used for calculation of T_s. See Section 11.4.8 of ASCE 7-16

A probabilistic seismic hazards analysis (PSHA) procedure was performed using the USGS Unified Hazard Tool to estimate the earthquake magnitude. The program allows user input of the project site coordinates and produces the expected peak ground motions for selected probability of exceedance (e.g., return periods). Based on a probability of exceedance of 2 percent in 50 years, the USGS Unified Hazard Tool determined a peak ground acceleration of 0.493g and a weighted magnitude of Mw = 6.44.

4.5 SITE SPECIFIC SEISMIC DESIGN CRITERIA

In accordance with ASCE 7-16 11.4.8, since the project is in a site class D and the S_1 value is greater than 0.2 (0.403g) a site-specific ground motion hazard analysis was performed. The analysis followed the requirements of ASCE 7-16, Sections 21.2 through 21.5, as well as ASCE 7-16, Supplement No. 1, and 2022 CBC 1830A.6.

The following steps were utilized for determining the site specific ground motion parameters: Seismic design parameters were obtained for the project site utilizing a Site Class D, and site coordinates from the Structural Engineers Association of California (SEAOC) website (http://seismicmaps.org). The USGS Unified Hazard Tool and the Risk-Targeted Ground Motion calculator was used to calculate the probabilistic ground motion response spectrum in accordance with ASCE 7-16 Section 21.2.1.2 Method 2. The 2014 NGA West2 – GMPEs worksheet from the Pacific Earthquake Engineering Research Center was then used to calculate deterministic spectral response acceleration as an 84^{th}-percentile 5% damped spectral response acceleration in the maximum horizontal direction by using fault parameters and magnitude area relationships given by the USGS Unified Hazard Tool in accordance with ASCE 7-16 Section 21.2.2. The Site-Specific MCE_R was then calculated by a single factor such that the maximum response spectral acceleration equals $1.5F_a$, with F_a determined using Table 11.4.1 in the ASCE 7-16. In accordance with ASCE 7-16 Section 21.3, the design spectral response had to be checked that no period shall be taken as less than 80% of S_a determined in accordance with Section 11.4.6, where F_a is determined using Table 11.4.1 and F_V is taken as 2.4 for $S_1 < 0.2$ or 2.5 for S_1 > or equal to 0.2. After checking design spectrum is greater than 80% of code-based spectrum for all periods, using the design spectrum graph, design acceleration parameters such as S_{DS} is taken as 90% of max S_a between periods T=0.2 and 5 seconds and parameter S_{D1} taken as the maximum value of the product, TS_a, for periods from 1 to 5 seconds for sites with $V_s < 365.76$ m/s in accordance with ASCE 7-16 Section 21.4. The parameters S_{MS} and S_{M1} are then taken as 1.5 times S_{DS} and S_{D1}, respectively. Lastly, the maximum considered earthquake geometric mean peak ground acceleration is taken by comparing deterministic peak ground acceleration from 84^{th} spectral acceleration at T=0.01 seconds to $0.5F_{PGA}$, following with the greater of those two values being compared to the probabilistic peak ground acceleration, with the lesser of the two values being the site-specific peak ground acceleration (0.557) in accordance with ASCE 7-16, Section 21.5. Based on this analysis, a peak ground acceleration of 0.557g is recommended for the evaluation of liquefaction. The site specific ground motion analysis is included in Appendix E.

TABLE 4.5-1
2022 CBC/ASCE 7-16 SITE SPECIFIC GROUND MOTION PARAMETERS

Seismic Item	Design Value	Seismic Item	Design Value
Site Class	D	Seismic Design Category	D
S_S	1.178	S_{MS}	1.523
S_1	0.403	S_{M1}	1.083
Site Coefficient, F_v	2.500	S_{DS}	1.015
Site Coefficient, F_a	1.029	S_{D1}	0.722
T_S	1.247		

5 GEOLOGIC AND SEISMIC HAZARDS

5.1 GENERAL

A discussion of specific geologic hazards that could impact the site is included below. The hazards considered include: surface fault rupture; seismically induced ground failures (liquefaction, lateral spreading, dynamic compaction, and landslides), general flooding and seismically induced flooding (tsunami, seiche, and dam failure); and hydrocompactive, expansive, and corrosive soils.

5.2 SURFACE FAULT RUPTURE

The site is not in an Alquist-Priolo Earthquake Fault Zone. Based upon the reviewed geologic and seismologic reports, maps, and aerial photographs, no mapped active faults cross or project toward the site. Additionally, no evidence of active faulting was visible on the site during our site reconnaissance. Therefore, it is our opinion that the potential for fault-related surface rupture at the project site is very low.

5.3 SEISMICALLY INDUCED GROUND FAILURE

5.3.1 Liquefaction

In order for soil liquefaction due to ground shaking, and possible associated effects to occur, it is generally accepted that four conditions are required:

- ❑ The subsurface soils are in a relatively loose state,
- ❑ The soils are saturated,
- ❑ The soils are fine, granular, and uniform, and
- ❑ Ground shaking of sufficient intensity to act as a triggering mechanism.

Geologic age also influences the potential for liquefaction. Sediments deposited within the past few thousand years are generally much more susceptible to liquefaction than older Holocene sediments; Pleistocene sediments are often more resistant; and pre-Pleistocene sediments are generally immune to liquefaction (Youd, et al., 2001).

Saturated granular sediments can experience liquefaction if subject to seismically induced ground motion of sufficient intensity and duration. Liquefaction analysis used procedures by

Youd et. al. (2001) and considered the relative density and fines content of the granular sediments. The analysis considered a historical high design groundwater depth of 5.8 feet bgs and measured groundwater depth of 29 feet bgs, ground acceleration (PGA_M) of 0.557g, and earthquake moment magnitude, Mw = 6.44

The coarse-grained layers of sand were evaluated for potential liquefaction using the cyclic liquefaction analysis model by Youd et. al. (2001). Liquefaction analysis performed on the granular sediments indicates that liquefaction and seismically induced settlement may occur in the granular sediments within boring B-7 at depths between 13 and 18 feet, 33 and 38 feet, and 43 and 51.5 feet bgs. However, due to the significant depth of non-liquefiable overburden soil with moderate to high relative density, bearing loss is not likely to occur.

Seismically induced settlement due to liquefaction was evaluated to be 1.1 inches. The general guidelines of the CGS indicate the differential seismically induced settlement across a building would be about one-half the total settlement. This would result in differential settlement across buildings of approximately 0.50-inch. The estimated differential settlement is anticipated to be within the tolerance of the proposed structures and will not result in significant damage or collapse. Therefore, no mitigation against liquefaction and/or settlement is necessary. The liquefaction and settlement calculations are included in Appendix F.

5.3.2 Dynamic Compaction

Another type of seismically induced ground failure, which can occur as a result of seismic shaking, is seismic settlement. Such phenomena typically occur in unsaturated, loose granular material or uncompacted fill soils. Dry sand settlement will be minimal (less than 0.2-inch), and mitigation measures are not warranted.

5.3.3 Landslides and Ground Failure

According to the Merced County General Plan (MCGP, 2030), habitable structures are prohibited on areas of unconsolidated landslide debris or in areas vulnerable to landslides. Since the project site is located on relatively flat terrain, the potential for landslides or other slope failures from earthquake-inducted ground shaking is unlikely. Strong shaking also has the potential for activating slope failures on creek banks (lurch cracking) and tension cracking in areas underlain by loose, low density soil such as uncompacted fill. Since the project site is not located near any creek banks, the potential for landslides or other slope failures from earthquake-induced ground shaking is considered unlikely.

5.4 FLOODING

5.4.1 Tsunamis, Seiches, Earthquake Induced Flooding

Tsunamis are sea waves of unusual size that occur from significant earthquakes either under the ocean floor or adjacent to shorelines and can travel great distances to impact low-lying communities and developments. Considering that the Coast Range protects the site from the sea, the potential for the site to be affected by a tsunami is nil.

A seiche is a free or standing wave oscillation that occurs in a confined body of water, such as a reservoir or lake. Earthquake-generated ground waves, which have a period that matches the natural period of the lake or reservoir, may cause the water to oscillate, which can cause damage to shoreline improvements. The MCGP indicates that earthquake-induced seiches are not considered a risk in Merced County.

5.4.2 Potential for Inundation Due to Dam Failure

According to the Los Banos General Plan, three dams could cause substantial flooding in Los Banos in the event of a failure: San Luis Dam and Los Banos Detention Reservoir Dam and Little Panoche Detention Dam. Therefore, mitigation measures such as preparing an emergency evacuation plan and route are recommended.

5.4.3 Flood Insurance Rate Maps

According to the Federal Emergency Management Agency (FEMA), the project site lies within a Zone X flood designation (Map Number 06047C0580G, dated December 2, 2008) indicating the area is determined to be outside the 0.2 percent annual chance floodplain. The civil engineer should plan site grades accordingly.

5.5 EXPANSIVE SOILS

Two (2) Expansion Index (EI) tests were performed on soil samples collected from the near surface soils of the site. The tests indicated the near surface soils have a moderate potential for expansion as indicated by an EI of 62 and 63. These expansive soils are susceptible to moderate volume changes associated with changes in soil moisture content. The potential for future differential movement of structures resulting from these soils can be reduced to normally tolerable levels by following the moisture conditioning, compaction, foundation, slab-on-grade, and site drainage recommendations presented herein.

5.6 HYDROCOMPACTION (SOIL COLLAPSE)

Our experience has found that some of the alluvial soils in the San Joaquin Valley are subject to hydrocompaction. Hydrocompactive soil has a relatively loose skeletal structure, which is weakly cemented by soluble salts or a slight clay mineral content. Moisture increase breaks down the inter-particle cementation causing a collapse of the skeletal structure. The significant loss in soil volume can result in settlement of overlying structures. The geotechnical exploration and laboratory testing identified that hydrocompactive characteristics were minimum. Based on the laboratory testing, post saturation of soil samples obtained from the site indicated moderate collapse potential upon inundation. Analysis indicates that settlement due to hydrocomapction is high, approximately 4.8 inches. The hydrocompaction is indicative of near surface disturbed soils. The earthwork recommendations in Section 6 require over-excavation to recompact the upper 4 feet of the site to mitigate the hydrocompactive soils.

5.7 CORROSIVE SOILS

The corrosion characteristics of the near surface foundation soils and any necessary mitigation measures are discussed in Section 7.7, “Corrosion Potential”.

5.8 REGIONAL SUBSIDENCE

Land subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. The MCGP does not identify subsidence within the proposed project area; however, MCGP acknowledges subsidence within the county area. Due to the significant depth to groundwater withdraw in the San Joaquin Valley, the occurrence of subsidence is typically regional and unlikely to affect isolated locations, as such, the potential for damaging differential settlement of the proposed building due to subsidence is very low.

6 EARTHWORK

6.1 GENERAL

Based on the laboratory data, field exploration, and geotechnical analyses, it is feasible to construct the proposed stadium improvements as currently envisioned. The use of spread and continuous reinforced concrete footings bearing on engineered fill are considered appropriate for structure support provided that the recommendations presented in this report are incorporated into the project design and construction.

Site grading recommendations are presented in subsequent sections of this report. All references to relative compaction, maximum density, and optimum moisture are based on ASTM Test Method D1557. All earthwork should extend a minimum of 5 feet beyond the perimeter of proposed improvements.

6.2 SITE PREPARATION

6.2.1 Stripping

All surface vegetation and any miscellaneous surface obstructions should be removed from the project area, prior to any site grading. It is anticipated that stripping of vegetation and grass landscape will involve the upper 1 to 3 inches. Surface strippings should not be incorporated into fill unless they can be sufficiently blended to result in an organic content less than 3 percent by weight (ASTM D2974). Stripped topsoil, with an organic content between 3 and 12 percent by weight, may be stockpiled and used as non-structural fill (i.e. on landscape areas). If used in landscape areas, soil with an organic content between 3 and 12 percent should be placed within 2 feet of finished grade, and at least 5 feet outside of building perimeters. Soil with an organic content greater than 12 percent by weight should be excluded from fill.

6.2.2 Disturbed Soil, Undocumented Fill and Subsurface Obstructions

Initial site grading should include a reasonable search to locate disturbed soil, undocumented fill soils, debris, abandoned underground structures, and/or existing utilities that may exist within the area of construction. All underground utilities should be rerouted beyond the perimeter of the proposed improvements and all previous trench backfill and any loose soils generated by the utility removal should be removed to expose undisturbed native soil. If any areas or pockets of soft or loose soils or void spaces made by burrowing animals, undocumented fill, or other disturbed soil are encountered, they should be excavated to expose approved undisturbed native soil. Excavations for removal of the above items should be dish-shaped and backfilled with engineered fill (see Section 6.3).

6.2.3 Over-Excavation

After performing the removals described in Sections 6.2.1 and 6.2.2, the proposed project site should be over-excavated a minimum depth of 4 feet below existing ground surface to mitigate hydrocompactive soils. The bottom of the excavation should be processed in accordance with Section 6.2.4 and the scarified soil should be recompacted according to Table 6.3-2. The lateral limits of the over-excavation should extend at least 5 feet beyond the perimeter of the proposed improvements. The over-excavation is intended to mitigate the observed hydrocompactive soils.

6.2.4 Scarification and Compaction

After stripping the site and performing the over-excavation and any required removals, all areas to receive fill or to support structures, or concrete flatwork should be scarified at least 12 inches below exposed subgrade elevation. The subgrade soil should be uniformly moisture conditioned according to Table 6.3-2, proof rolled to detect soft or pliant areas, and compacted to the requirements for engineered fill. Soft or pliant areas should be mitigated in accordance with Sections 6.2.2.

6.2.5 Construction Considerations

Should site grading be performed during or subsequent to wet weather, near-surface site soils may be significantly above optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Disking to aerate, chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be required to mitigate the effects of excessive soil moisture and facilitate earthwork operations. Any consideration of chemical treatment (e.g. lime) to facilitate construction would require additional soil chemistry evaluation and could affect landscape areas and some construction materials.

6.3 ENGINEERED FILL

6.3.1 Materials

All engineered fill soils should be nearly free of organic or other deleterious debris and less than 3 inches in maximum dimension. The on-site soil exclusive of debris may be used as engineered fill, provided it contains less than 3 percent organics by weight (ASTM D2874).

Recommended requirements for any imported soil to be used as engineered fill, as well as applicable test procedures to verify material suitability, are provided on Table 6.3-1.

TABLE 6.3-1
IMPORT FILL CRITERIA

<table>
<tr><th colspan="4">Gradation
(ASTM C136)</th></tr>
<tr><th colspan="2">Sieve Size</th><th colspan="2">Percent Passing</th></tr>
<tr><td colspan="2">76 mm (3-inch)</td><td colspan="2">100</td></tr>
<tr><td colspan="2">19 mm (¾-inch)</td><td colspan="2">80 – 100</td></tr>
<tr><td colspan="2">No. 4</td><td colspan="2">60 – 100</td></tr>
<tr><td colspan="2">No. 200</td><td colspan="2">20 – 50</td></tr>
<tr><th colspan="2" rowspan="2">Expansion Index
(ASTM D4829)</th><th colspan="2">Plasticity
(ASTM D4318)</th></tr>
<tr><th>Liquid Limit</th><th>Plasticity Index</th></tr>
<tr><td colspan="2">< 20</td><td>< 25</td><td>< 9</td></tr>
<tr><th colspan="4">Organic Content
(ASTM D 2974)</th></tr>
<tr><td colspan="4">< 3% by dry weight</td></tr>
<tr><th colspan="4">Corrosivity</th></tr>
<tr><th>pH</th><th>Minimum Resistivity (ohm-cm)</th><th>Soluble Sulfate (ppm)</th><th>Soluble Chloride (ppm)</th></tr>
<tr><td>6 to 8</td><td>> 2,000</td><td>< 2,000</td><td>< 500</td></tr>
<tr><th colspan="4">Resistance Value
(California Test Method No. 301)</th></tr>
<tr><td colspan="4">R-value = 14</td></tr>
</table>

The import criteria for corrosion are typical threshold limits for non-corrosive soil. All imported fill materials to be used for engineered fill should be sampled and tested by a representative of the project Geotechnical Engineer prior to being transported to the site. In addition, import fill should meet the requirements of the Department of Toxic Substances Control (DTSC), Information Advisory for Clean Imported Fill Material. The purpose of testing import soils is to ensure that “clean” fill soils are imported to otherwise “clean” sites. The testing does not require notification of the DTSC, rather the testing should be performed as part of the routine due diligence of constructing on state property and the results filed with the school district.

6.3.2 Compaction Criteria

Soils used as engineered fill should be uniformly moisture conditioned at to at least the percentages above optimum moisture indicated in Table 6.3-2, placed in horizontal lifts less than 8 inches in loose thickness, and compacted to within the required range of relative compaction indicated on Table 6.3-2. Discing and/or blending may be required to uniformly moisture-condition soils used for engineered fill. The actual level of moisture conditioning and compaction will be based on the expansion potential and moisture tensity relationships determined during grading. The general intent is to bring the expansive material to about 80 to 85 percent saturation at the time of construction. Preliminary design with use of on-site soil should consider criteria (bold values) for the EI range of 41 – 80 (16 < PI < 25).

TABLE 6.3-2
MOISTURE CONDITIONING AND COMPACTION

Soils		Relative Comaction (min – max)	Minimum Moisture Conditioning (% Over Optimum)
PI	EI		
< 9	< 20	90%	+ 0%
9 – 15	21 – 40	90-95%	+ 3%
16 – 25	**41 – 80**	**88-92%**	**+ 4%**
> 25	> 80	88-92%	+ 5%

6.4 TEMPORARY EXCAVATIONS

6.4.1 General

All excavations must comply with applicable local, State, and Federal safety regulations including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Construction site safety is generally the responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. The information provided is a service to the client. Under no circumstances should the information provided be interpreted to mean that **TECHNICON** is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

6.4.2 Excavations and Slopes

The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, State, and/or Federal Safety regulations (e.g., OSHA health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations). All excavations should be constructed and maintained in conformance with current OSHA requirements (29 CFR Part 1926) for a Type B (Sandy Clay) soil.

6.4.3 Construction Considerations

Heavy construction equipment, building materials, excavated soil, and vehicular traffic should be kept sufficiently away from the top of any excavation to prevent any unanticipated surcharging. If it is necessary to encroach upon the top of an excavation, **TECHNICON** can provide comments on slope gradients or loads on shoring to address surcharging, if provided with the geometry. Shoring, bracing, or underpinning required for the project (if any), should be designed by a professional engineer registered in the State of California.

During wet weather, earthen berms or other methods should be used to prevent run-off water from entering all excavations. All run-off should be collected and disposed of outside construction limits.

TRENCH BACKFILL

6.4.4 Materials

Pipe zone backfill (i.e., material beneath and in the immediate vicinity of the pipe), should consist of soil compatible with design requirements for the specific types of pipes. It is recommended the project designer or pipe supplier develop the material specifications based on planned pipe types, bedding conditions, and other factors beyond the scope of this investigation. Randomly excavated on-site soil will likely be Class IVA material per ASTM D2321.

Trench zone backfill (i.e., material placed between the pipe zone backfill and finished subgrade) may consist of native soil which meets the requirements for engineered fill. It should be noted that the native clayey material may require significant effort to achieve compaction within narrow trenches. If granular import is used for backfill, a native clay soil or lean concrete slurry dike should be provided in the upper 4 feet where trenches cross beneath the perimeter of the4 structures. This dike is intended to minimize the lateral migration of subsurface water into clay soil under the buildings. If granular import material is used for pipe or trench zone backfill, it should have a piping ratio compatible with the adjacent soil, or a geofabric separator should be utilized.

6.4.5 Compaction Criteria

All trench backfill should be placed and compacted in accordance with recommendations provided for engineered fill. Mechanical compaction is recommended; ponding or jetting should not be used.

7 DESIGN RECOMMENDATION

7.1 GENERAL

The proposed structures may be supported by conventional shallow spread footings supported on properly engineered fill. The investigation has revealed the presence of expansive soils, which will dictate the implementation of specific design measures to minimize the amount of future movement due to the expansive soils. The following recommendations are based on the assumption that the recommendations in Section 6, “Earthwork”, have been implemented. Recommendations regarding the geotechnical aspects of building design are presented in subsequent sections.

7.2 SPREAD FOOTINGS

Considering the presence of moderately expansive clay soils, it is recommended that all interior and exterior footings be continuous and embedded at least 18 inches below the lowest adjacent grade. The use of isolated footings is discouraged unless abutted entirely by hardscape. As a minimum, continuous footings should be reinforced with one #4 bar near the top and one #4 bar near the bottom (2 bars total). Clay subgrade within 12 inches of the footing subgrade should have a moisture content of at least 4 percent above optimum, immediately prior to placing the footing concrete.

Foundation depths and reinforcement should also satisfy structural and constructability considerations. These recommendations are based on engineering judgement and experience associated with expansive soil and is not based on any structural analysis. Any additional reinforcement for structural considerations should be provided by the structural engineer. These recommendations should be reviewed by the project engineer or building designer and they should concur with the recommendations provided.

7.2.1 Vertical Bearing Pressures and Settlements – Strip and Spread Foundations

Generally, two geotechnical issues determine the design bearing pressure for conventional spread footing foundations: strength of the foundation soil, and tolerable settlement. For lightly loaded structures, design bearing may be determined by constructability considerations or code-required minimum dimensions.

Table 7.2-1 presents the allowable available bearing capacity for static loading which includes dead load plus live load (D.L. + L.L.) and total combined loading (D.L. + L.L. + transient loading, such as wind or seismic), and unfactored nominal bearing.

TABLE 7.2-1
BEARING CAPACITY

	Bearing Capacity (psf)
Static Loading	2,000
Total Combined Loading	3,000
Unfactored Ultimate Bearing	6,000

The above bearing capacities are appropriate for design using the Basic and Alternative Load Combinations in Section 1605.3 of the 2022 CBC.

Analysis, based on methods by Hough, determined the following estimated static settlement based on a range of assumed design bearing and estimated structural loads. The estimated settlements presented in Table 7.2-2 are based on the assumption that the sustained load of footings is equal to 80 percent of the total load.

TABLE 7.2-2
ESTIMATED SETTLEMENT

Footing Type	Loading (DL + LL)	Design Bearing (psf)	Estimated Settlement (inch)
Strip	3 kips/ft	2,000	0.50
Square	30 kips	2,000	0.50

If deemed necessary by the design engineer, **TECHNICON** can provide the estimated settlement for other loading conditions.

7.2.2 Lateral Resistance

Lateral loads applied to foundations can be resisted by a combination of passive lateral bearing and base friction. Table 7.2-3 presents the allowable and ultimate passive pressures and frictional coefficients.

TABLE 7.2-3
PASSIVE PRESSURES AND FRICTIONAL RESISTANCE

	Allowable		Ultimate
	Static	Total Combined	
Frictional Resistance	0.24N + 75 psf	0.32N + 100 psf	0.48N + 150 psf
Passive Pressure	195 psf/ft + 290 psf	260 psf/ft + 385 psf	395 psf ft + 580 psf
Lateral Translation Needed to Develop Passive Pressure	0.02 D	0.03 D	0.04 D

Note: 1) D is the footing depth (ft)

Due to the expansive soils at the site, passive resistance should not be used within the top 12 inches of footings unless abutted by hardscape. If the deflection resulting from the strain necessary to develop the passive pressure is beyond structural tolerance, additional passive pressure values could be provided based on tolerable deflection. The passive pressure and frictional resistance can be used in combination. The allowable values already incorporate a factor of safety and, as such, would be compared directly to the driving loads. If analytical approaches require the input of a safety factor, the ultimate values would be used.

7.2.3 Design and Construction Considerations

Prior to placing steel or concrete, footing excavations should be cleaned of all debris, loose soft soil, and water. All footing excavations should be observed by a representative of the project Geotechnical Engineer immediately prior to placing steel or concrete. The purpose of these observations is to verify that the bearing soils encountered in the foundation excavations are similar to those assumed in the analysis and to verify these recommendations are implemented.

7.3 EARTH RETAINING STRUCTURES

If project improvements will include retained earth systems, the lateral earth pressure against retaining structures will be dependent upon the ability of the wall to deflect. Presented in Table 7.3-1 are the active, at-rest, and braced lateral earth pressures for on-site soil. The active pressure is applicable to walls able to rotate 0.0005 radians at the top or bottom. The at-rest soil pressure is applicable to retaining structures that are fully fixed against both rotation and translation. Walls restrained from translation at the top and bottom, but able to deflect 0.0005 radian between restrained points should be designed for the braced lateral pressure.

TABLE 7.3-1
LATERAL EARTH PRESSURES

	Lateral Earth Pressures
Active Pressure (psf/ft of depth)	53
At-Rest Pressure (psf/ft of depth)	95
Braced Pressure (psf)	34 H

Note: H in the expression represents the retained height in feet (measured from finished grade to bottom of footing).

The recommended values incorporate saturated soil conditions but not the lateral pressure due to hydrostatic forces. Wall backfill should be adequately drained.

Retaining wall foundation design can utilize the passive pressures and frictional resistance given in Table 7.2-3 and the bearing capacities given in Table 7.2-1. When utilizing the bearing capacities of Table 7.2-1, the static loading value represents the average bearing for the footing and the total combined loading value presents the allowable maximum toe pressure.

7.4 SLABS-ON-GRADE

7.4.1 Subgrade Preparation

Slabs-on-grade should be supported on recompacted soils or engineered fill placed as described in Section 6.3 of this report. Subgrade soils within 24 inches of pad grade should have a moisture content of at least 4 percent above optimum immediately prior to placing the slab concrete, or placing the vapor retarding membrane.

7.4.2 Capillary and Moisture/Vapor Break

Considering the soil type and regional groundwater depth, a capillary break (i.e. clean sand or gravel layer) is not considered necessary.

In areas to receive moisture-sensitive floor coverings, it is recommended that the subgrade be covered by a 10 mil vapor retarding membrane meeting the specifications of ASTM E1745, (Class C with minimum puncture resistance of 475 grams). The subgrade surface should be smooth and care should be exercised to avoid tearing, ripping, or otherwise puncturing the vapor retarding membrane. If the vapor retarding membrane becomes torn or disturbed, it should be removed and replaced or properly patched. Considering the soil type and regional groundwater depth, a capillary break (i.e., clean sand or gravel layer) is considered unnecessary.

The vapor retarding membrane could be covered with approximately 1 to 2 inches of saturated surface dry (SSD) sand to protect it during construction. Concrete should not be placed if sand overlying the vapor barrier has been allowed to attain a moisture content greater than about 5 percent (due to precipitation or excessive moistening). In addition, penetrations through the concrete slab shall be sealed or protected to prevent inadvertently introducing excess water into the sand cushion layer due to curing water, wash-off water, rainfall, etc. Excessive water beneath interior floor slabs could result in future significant vapor transmission through the slab, adversely affecting moisture-sensitive floor coverings and could inhibit proper concrete curing.

According to American Concrete Institute (ACI) 302.2R-06, concrete could be placed directly on the vapor retarding membrane to minimize the potential for developing a reservoir of moisture in the sand layer, which could lead to future moisture entrapment and potential moisture and flooring problems. If concrete is placed directly on the membrane, care should be taken to not damage the membrane and special concrete curing methods implemented to minimize potential slab curing problems. If the protective sand layer is not used, the building designer should be in agreement. Many slab designers feel the sand cushion is important to proper concrete curing as well as minimizing slab curling issues.

Although slab support currently the industry standard, this system might not be completely effective in preventing floor slab moisture vapor transmission problems. This system will not necessarily assure that floor slab moisture transmission rates will meet floor-covering manufacturer standards and that indoor humidity levels will not inhibit mold growth. A qualified specialist(s) with knowledge of slab moisture protection systems, flooring design and other potential components that may be influenced by moisture, should address these post-construction conditions separately. The purpose of a geotechnical investigation is to address subgrade conditions only, and consequently, it does not evaluate future potential conditions.

7.4.3 Conventional Slab Design

To accommodate the potential for expansive soils, the minimum reinforcement of concrete floor slabs should consist of #3 bars spaced at 24 inches on center in both principle directions or equivalent. The reinforcement is based on engineering judgement and experience with expansive soils, not on any structural analysis. The reinforcement assumes a nominal slab thickness of 5 inches. Slab thicknesses and reinforcement must also satisfy structural considerations. A modulus of subgrade reaction, K_p (B_p = 1 foot), of 200 pci may be used for elastic analysis of slabs on properly compacted subgrade. Slab concrete should have good density, a low water/cement ratio, and proper curing to promote a low porosity and reduce moisture vapor transmission.

7.5 PIER FOUNDATIONS

Pier foundations may be desirable for support of shade structures, lighting, etc. Presented in Table 7.5-1 are expressions for the allowable and ultimate friction resistance vales for vertical compression loads on pier foundations.

TABLE 7.5-1
ALLOWABLE AXIAL CAPACITY

	Frictional Resistance for Vertical Loads in Compression (lbs)
Static Loading	40 DL^2
Total Combined Loading	55 DL^2
Unfactored Ultimate Capacity	80 DL^2

Note: 1) D is pier diameter in feet and L is embedment length in feet.
2) The allowable uplift resistance would be 70 percent of the compressional resistance.

The allowable passive pressure to resist lateral loads on isolated piers may be taken as 135 psf per foot of depth of embedment. The value may be increased by one-third for the total combined loads, including wind and seismic. The passive pressure values already consider arching and, as such, should not be increased further. The passive pressure only considers soil strength. Tolerable pier deflection may govern the design lateral resistance. If provided with pier geometry, lateral load, and loading eccentricity, **TECHNICON** can provide the estimated pier head deflection.

7.6 PAVEMENT DESIGN

7.6.1 Design R-value and Traffic Assumptions

The R-value for the on-site soil was evaluated in the laboratory on bulk samples of subgrade soil taken at three (3) locations from the upper 3 feet within proposed pavement areas. The tested soils had measured R-values of 14, 20, and 20. The laboratory testing conformed to Caltrans

Test Method 301. Based on the tested values, an R-value of 14 is recommended for pavement design. If requested, additional samples could be collected after grading has been performed in order to reevaluate the design R-value.

Detailed vehicular load and frequency information was not provided for this project at the time this report was prepared. Traffic on the site is anticipated to consist of parking and drives for automobiles and regular school bus traffic. Consequently, a range of pavement sections have been provided based on Traffic Indexes (T.I.'s) of 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5 and 8.0. These traffic design assumptions should be reviewed for compatibility with the actual development, and revised pavement sections developed, as necessary.

7.6.2 Asphalt Concrete Pavement Design

Flexible pavement design recommendations have been developed fort the given T.I.’s based upon the California Department of Transportation (Caltrans) design procedures and a design R-value of 14. The flexible asphalt concrete pavement sections associated with the assumed T.I.’s for on-site asphalt pavements are summarized in Table 7.6-1.

TABLE 7.6-1
RECOMMENDED MINIMUM PAVEMENT SECTIONS

Traffic Index	Asphalt Concrete (inches)	Aggregate Base – Class 2 (inches)
4.5	2.5	8.0
5.0	2.5	9.5
5.5	3.0	10.0
6.0	3.5	11.0
6.5	3.5	12.5
7.0	4.0	13.5
7.5	4.5	14.5
8.0	4.5	16.0

The design criteria assumes a 20-year design period and that normal maintenance (crack sealing, etc.) is performed. The traffic index is a measure of the volume of truck traffic that will be applied to a pavement section in the design life. The allowable average daily truck traffic (ADTT) for the assumed traffic indexes is presented in Table 7.6-2.

TABLE 7.6-2
AVERAGE DAILY TRUCK TRAFFIC

Traffic Index	2-Axle Vehicle	or	3-Axle Vehicle	or	5-Axle Vehicle
4.5	2.2		0.8		0.2
5.0	5.2		2.0		0.5
5.5	11.6		4.3		1.1
6.0	24.1		9.0		2.4
6.5	47.3		17.7		4.7
7.0	88.1		33.0		8.8
7.5	157.3		59.0		15.8
8.0	270.6		101.5		27.1

The flexible pavement should conform to and be placed in accordance with the Caltrans Standard Specifications, 2015. The aggregate base (Class 2) should comply with the specifications in Sections 26. The aggregate base and upper 12 inches of subgrade should be compacted to a minimum of 95 percent relative compaction as determined by Caltrans Test Method 216 (Dry determination) or ASTM D1557 test procedures.

7.6.3 Moisture Considerations

The pavement design should consider both the vehicular loading, as well as the environmental factors. The vehicular loading will depend on the amount and type of traffic anticipated for the pavement design life. Environmental factors include the potential for moisture variations beneath the pavement structural section. It is recommended that all pavement areas conform to the following criteria:

- All trench backfill, including utility and sprinkler lines, should be properly placed and adequately compacted to provide a stable subgrade.
- Adequate drainage should be provided to prevent surface water from ponding and saturating the subgrade soil.
- A periodic maintenance program should be incorporated.
- All concrete curbs separating pavement and landscaped areas should extend to the subgrade.

7.6.4 Construction Considerations

In the event unstable (pumping) subgrades are encountered within planned pavement areas, we recommend a heavy, rubber-tired vehicle (typically a loaded water truck) be used to test the load/deflection characteristics of the finished subgrade materials. It is recommended this vehicle have a minimum rear axle load (at the time of testing) of 16,000 pounds with tires inflated to at least 65 psi pressure. If the tested surface shows a visible deflection extending more than 6 inches from the wheel track at the time of loading, or a visible crack remains after loading, corrective measures should be implemented. Such measures could include disking to aerate, chemical treatment, replacement with drier material, or other methods. It is recommended **TECHNICON** be retained to assist in developing which method (or methods) would be applicable for this project.

7.7 CORROSION POTENTIAL

Two (2) soil samples from the near surface of the site were tested for pH, minimum electrical resistivity, and soluble sulfate and chloride.

The pH of the soil tested was 7.0 and 7.5 and the minimum electrical resistivity was 533 and 756 ohm-cm. These values are generally representative of an environment that could be moderately corrosive to buried unprotected metals. Utilizing methods provided in Caltrans California Test 643, "Method for Estimating the Service Life of Steel Culverts", an 18-gauge steel zinc-coated culvert is estimated to have a maintenance-free service life (years to perforation) exceeding 16 years. Therefore, if project improvements will involve metal that comes into contact with the on-site soil, the design should consider this potential soil corrosiveness described.

Test results suggest that low levels of soluble sulfates (24 ppm) and low levels of soluble chlorides (< 5 ppm) are present in on-site soils. Normal cement (Type II) and normal reinforcement cover should be adequate for foundation concrete that comes in contact with the foundation soils.

Corrosion is dependent upon a complex variety of conditions, which are beyond the geotechnical practice. Consequently, a qualified corrosion engineer should be consulted if the owner desires more specific recommendations.

7.8 SITE DRAINAGE

Providing and maintaining adequate site drainage to prevent entrapment and ponding of surface water and excessive moisture migration into the subgrade soil is very important. Poor perimeter or surface drainage could cause reduced subgrade support. The site should incorporate the basis for good drainage. This includes:

- ❑ Sufficient pad height to allow for proper drainage; and
- ❑ Defined drainage gradients away from the structure to points of conveyance, such as drainage swales and/or area drains and discharge pipe.

The maintenance personnel must maintain the established drainage by not blocking or obstructing gradients away from structures without providing some alternative drainage means (e.g., area drains and subsurface pipes). If planter or landscape areas are established near the structures, it is important to prevent surface run-off from entering the planter and care must be taken not to over irrigate and to maintain a leak-free sprinkler piping system. Consideration should be given to use of low volume emitter irrigation systems for planters. Well-maintained low-volume emitter irrigation (drip system) is best suited for planters adjacent to structures. Watering practices must strive to use only sufficient water to sustain and promote plant growth.

8 ADDITIONAL SERVICES

8.1 DESIGN REVIEW AND CONSULTATION

It is recommended that **TECHNICON** be retained to review those portions of the contract drawings and specifications that pertain to earthwork, foundations, and pavements prior to finalization to determine whether they are consistent with our recommendations.

8.2 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that a representative of **TECHNICON** observe the excavation, earthwork, pavements, and foundation, phases of work to determine that the subsurface conditions are compatible with those used in the analysis and design. **TECHNICON** can conduct the necessary field testing and provide results on a timely basis so that action necessary to remedy indicated deficiencies can be taken in accordance with the plans and specifications. Upon completion of the work, a written summary of our observations, field testing, and conclusions regarding the conformance of the completed work to the intent of the plans and specifications will be provided. This additional service is not part of this current contractual agreement. **TECHNICON** firm will not be responsible for establishing or confirming building or foundations depths or locations unless retained to do so.

9 LIMITATIONS

The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of our field and laboratory investigation, combined with interpolation of the subsurface conditions between boring locations. The nature and extent of the variations between borings may not become evident until construction. If variations or undesirable conditions are encountered during construction, our firm should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. The unexpected conditions frequently require additional expenditures for proper construction of the project. **TECHNICON Engineering Services, Inc.** will not assume any responsibility for errors or omissions if the final extent and depth of earthwork is not determined by our firm at the time of construction due to said variations or undesirable conditions encountered.

If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes, or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing. Such conditions may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.

It is the responsibility of the contractor to provide safe working conditions with respect to excavation slope stability. This report does not relieve the contractors of responsibility for temporary excavation construction, bracing and shoring in accordance with CAL OSHA requirements.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This report should not be construed as an environmental audit or study.

This report has been prepared for the sole use by Los Banos Unified School District and their designated consultants for the proposed Transitional Kindergarten Center at East B Street and Place Road in Los Banos, California. Recommendations presented in this report should not be extrapolated to other areas or used for other projects without prior review. This report has been prepared with the intent that the firm of **TECHNICON** will be performing the construction testing and observation for the complete project. If, however, another firm or individual(s) should be retained or employed to use this geotechnical investigation report for the purpose of construction testing and observation, notice is hereby given that **TECHNICON** will not assume any responsibility for errors or omissions, if any, which may occur and which could have been avoided, corrected, or mitigated if **TECHNICON**, had performed the work. This notice also applies to the misuse or misinterpretation of the conclusions and recommendations outlined in this report. Furthermore, the other firm or individual(s) performing construction testing and observation should accept transfer of responsibility of the work, as required by the California Building Code, in writing to the project owner and **TECHNICON**. The firm accepting transfer of responsibility should perform additional investigation(s) as may be necessary to develop their own conclusions, evaluations, and recommendations for design and construction.

10 REFERENCES

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FIGURES

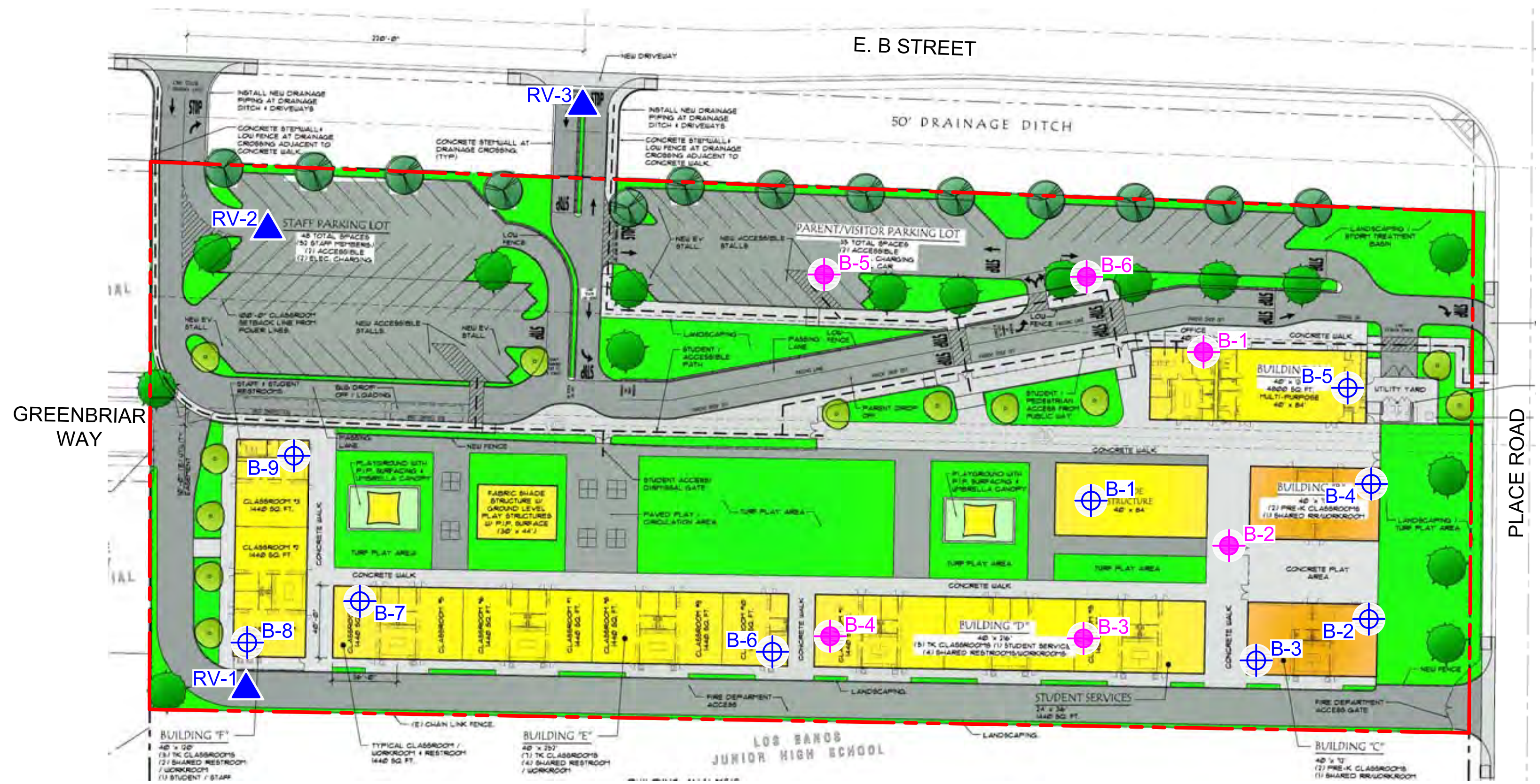
1 through 8

LAT.: 37.0661°N, LONG.: 120.8278°W, 13-T10S-R10E, MDB&M

NORTH

TECHNICON ENGINEERING SERVICES, INC.

PROJECT: 230167	VICINITY MAP PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER - LOS BANOS USD EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 1 NTS
SOURCE: USGS TOPOGRAPHIC MAPS		

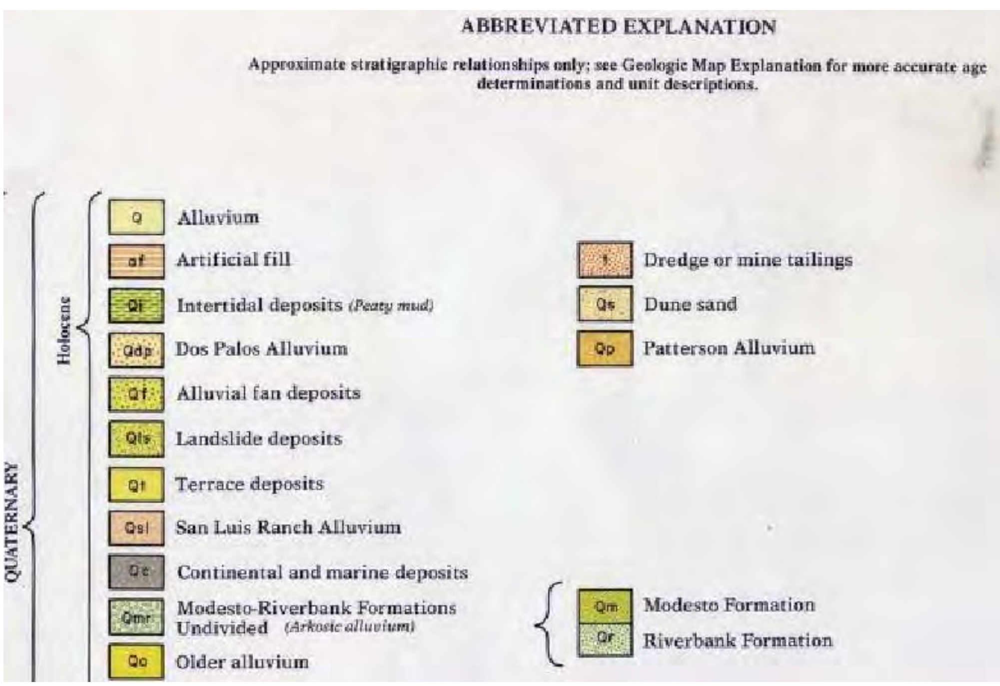


▲ =R-VALUE LOCATIONS

⌖ =SOIL BORING LOCATIONS

● =PREVIOUS SOIL BORING LOCATIONS (TECHNICON #160421)

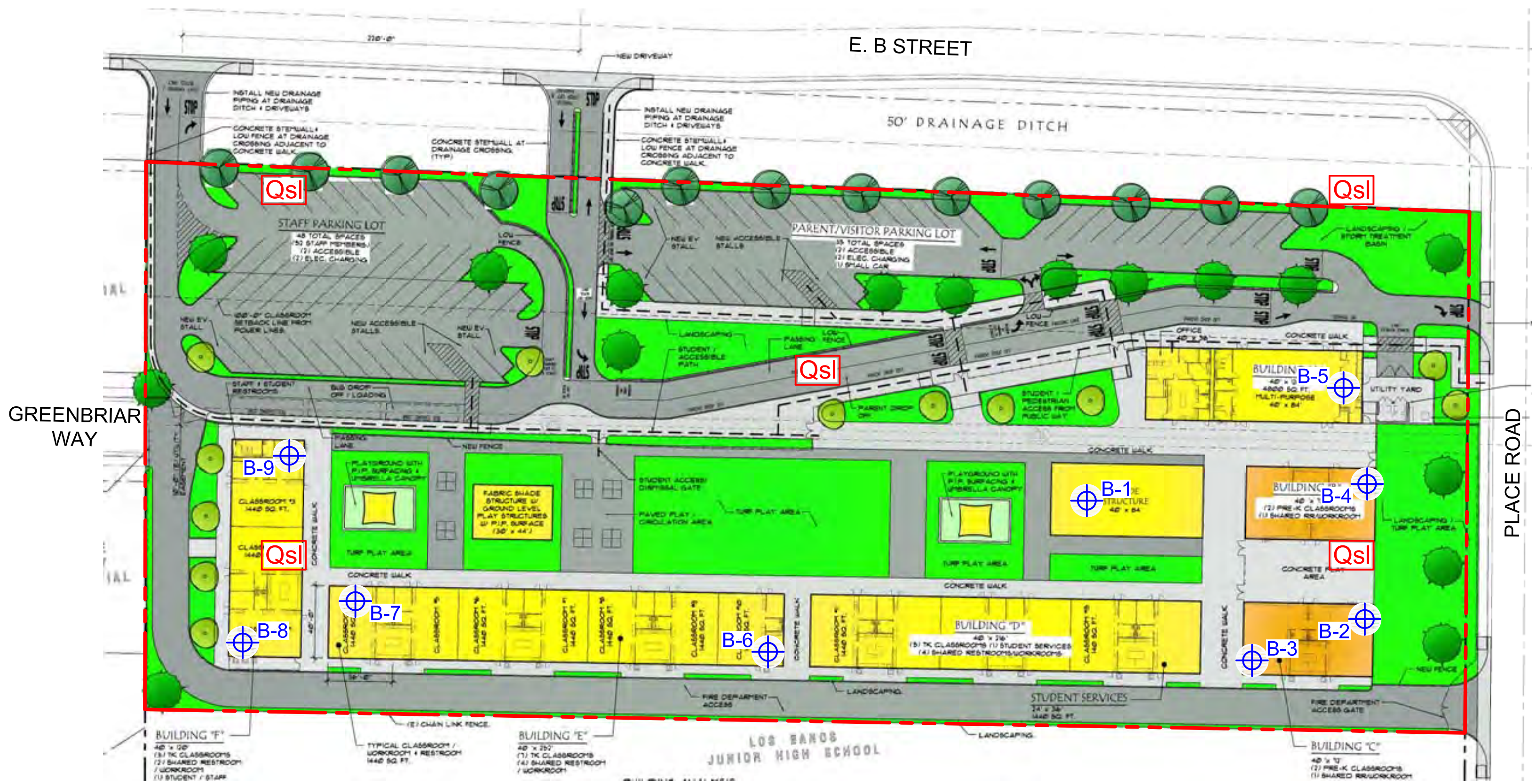
TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 230167	DATE: 8/11/23	SITE MAP PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER LOS BANOS UNIFIED SCHOOL DISTRICT EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 2
	CAD BY: MH	APPROVED BY: AA		



GEOLOGIC MAP OF THE SAN FRANCISCO - SAN JOSE QUADRANGLE, CALIFORNIA, SCALE 1:250,000 - 1991

NORTH

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 230167 SOURCE: DIVISION OF MINES AND GEOLOGY	REGIONAL GEOLOGIC MAP PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER - LOS BANOS USD EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 3 NTS



Qsl =SAN LUIS RANCH ALLUVIUM

=SOIL BORING LOCATIONS

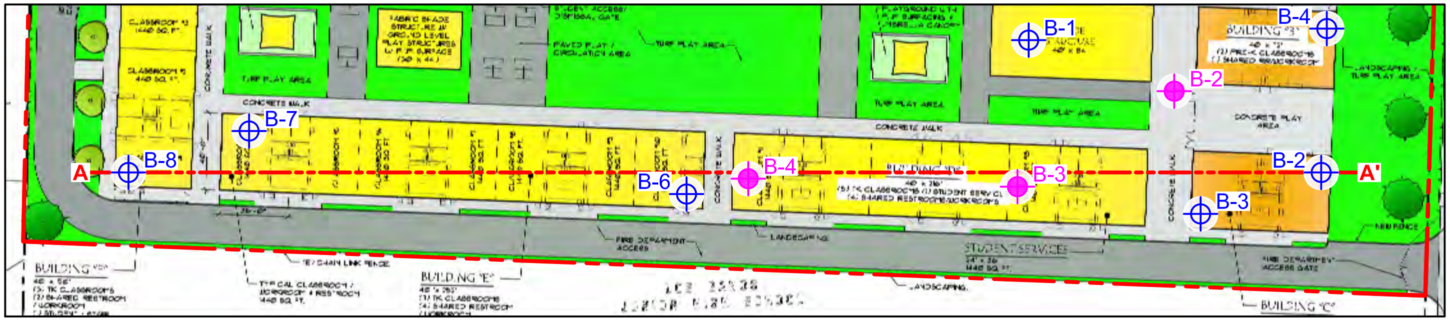
NORTH

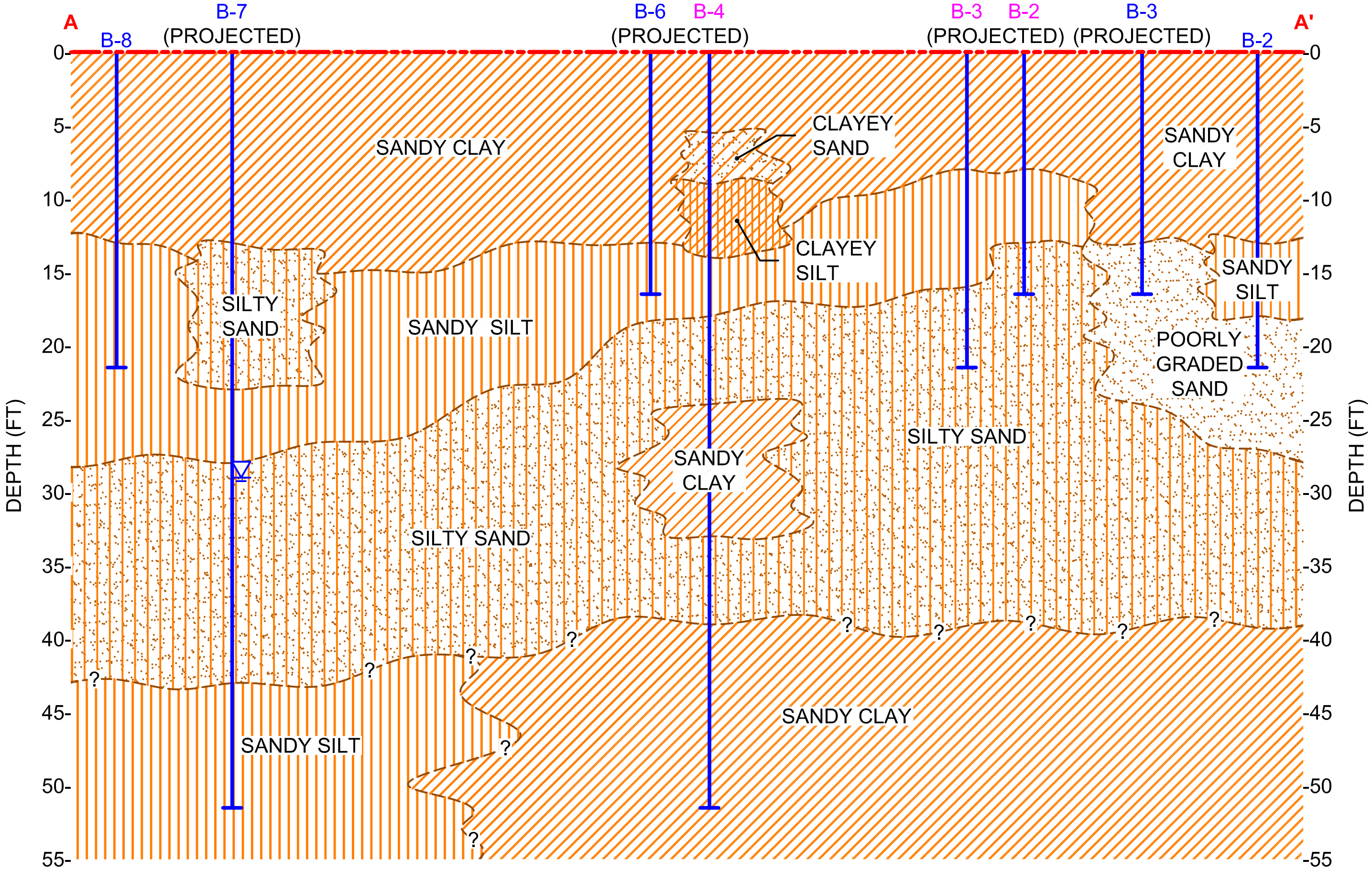
SCALE: 1"=100'

0' 50' 100'

TECHNICON
ENGINEERING SERVICES, INC.

PROJECT: 230167	DATE: 8/11/23	GEOLOGIC MAP OF SITE PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER LOS BANOS UNIFIED SCHOOL DISTRICT EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 4
CAD BY: MH	APPROVED BY: AA		



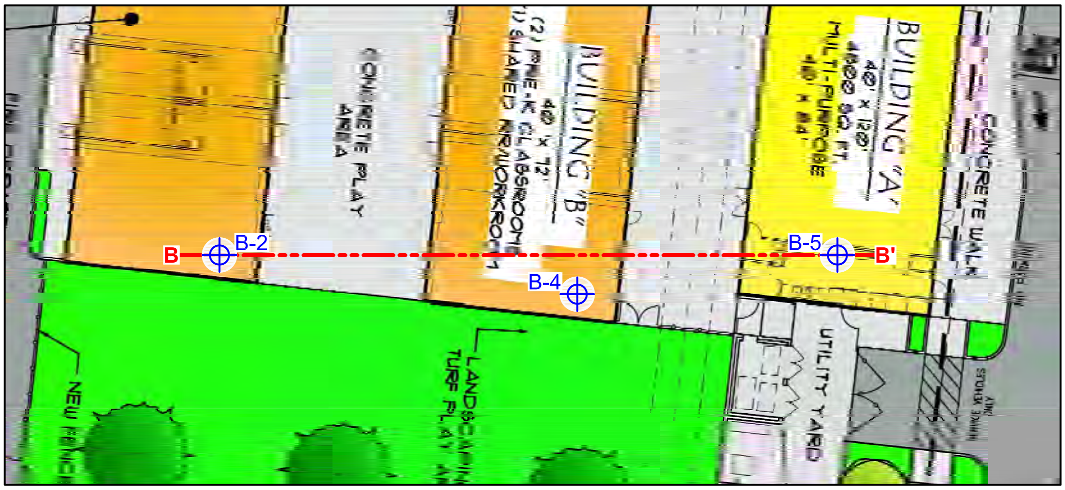


TECHNICON ENGINEERING SERVICES, INC.

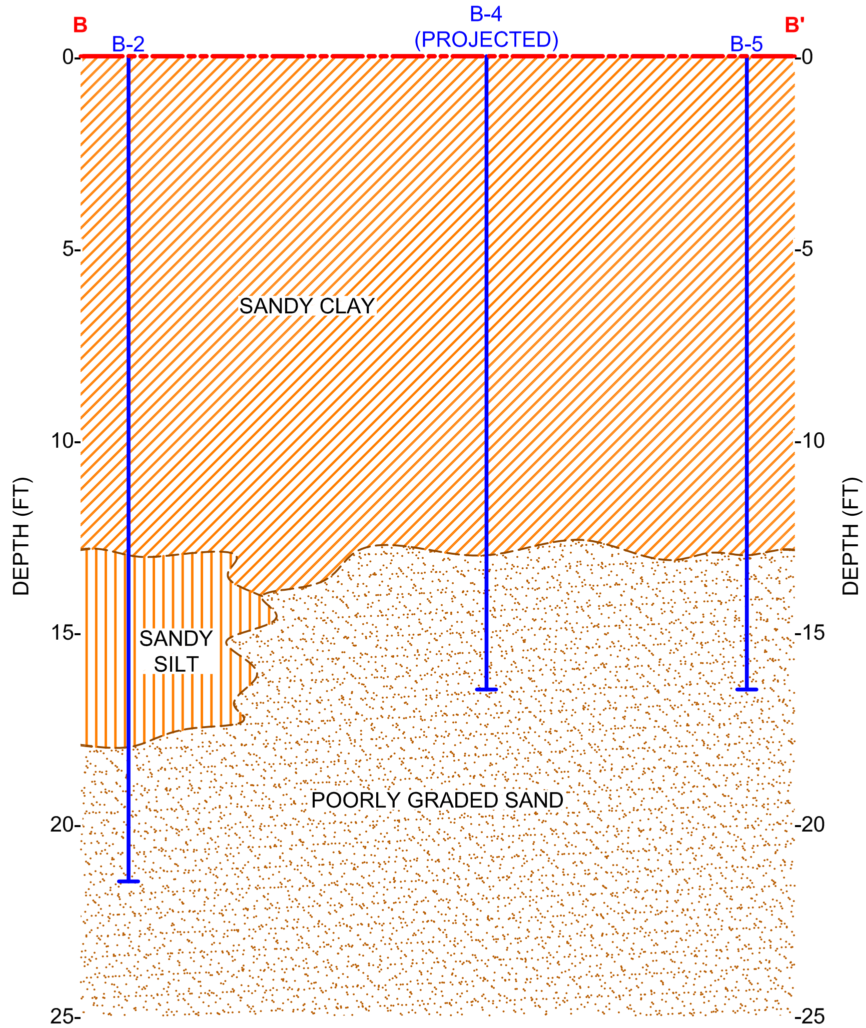
PROJECT: 230167	DATE: 8/16/23
CAD BY: MH	APPROVED BY: AA

CROSS SECTION A-A'
PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER
LOS BANOS UNIFIED SCHOOL DISTRICT
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

FIGURE 5

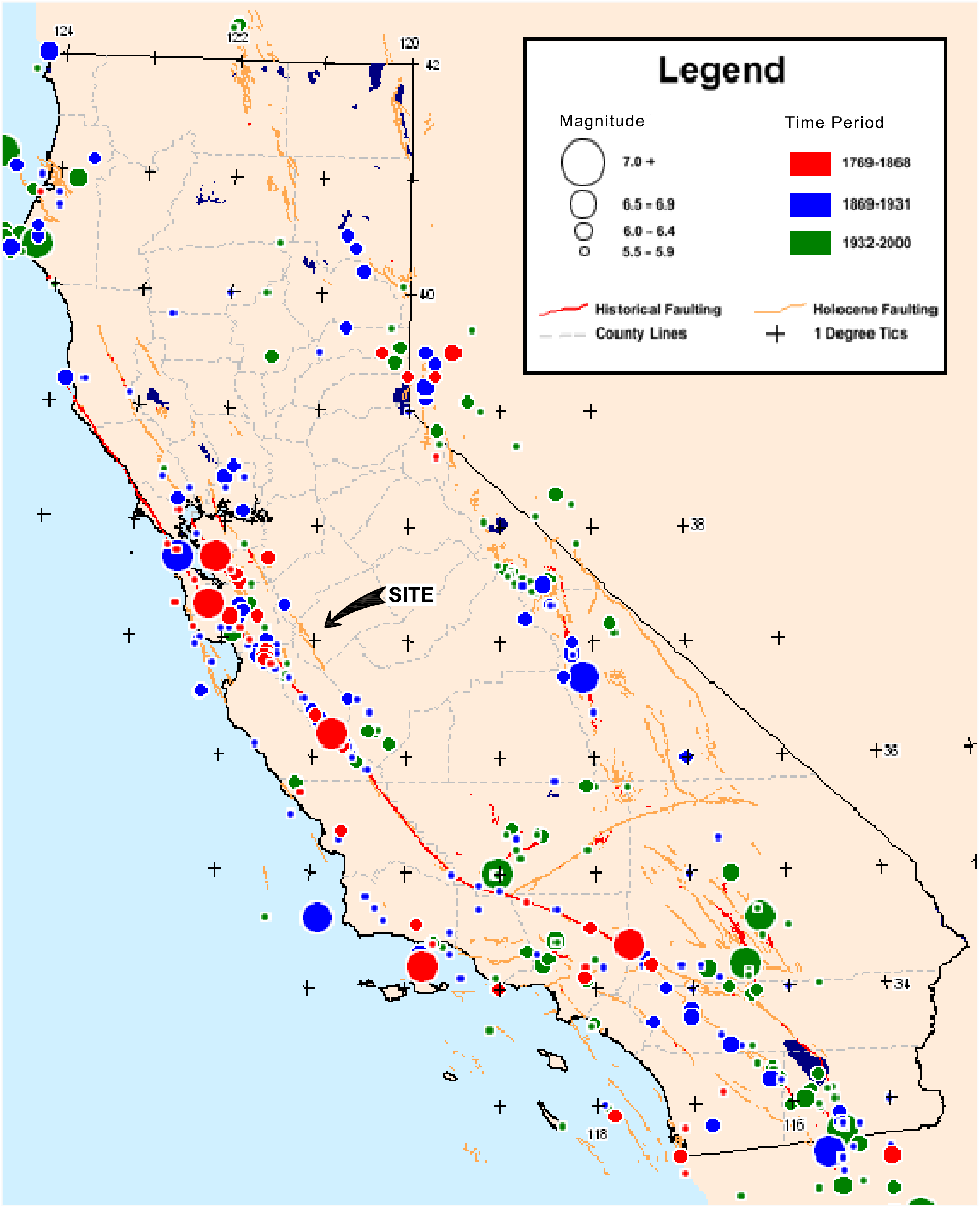


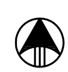
NORTH
SCALE: 1"=40'



TECHNICON ENGINEERING SERVICES, INC.

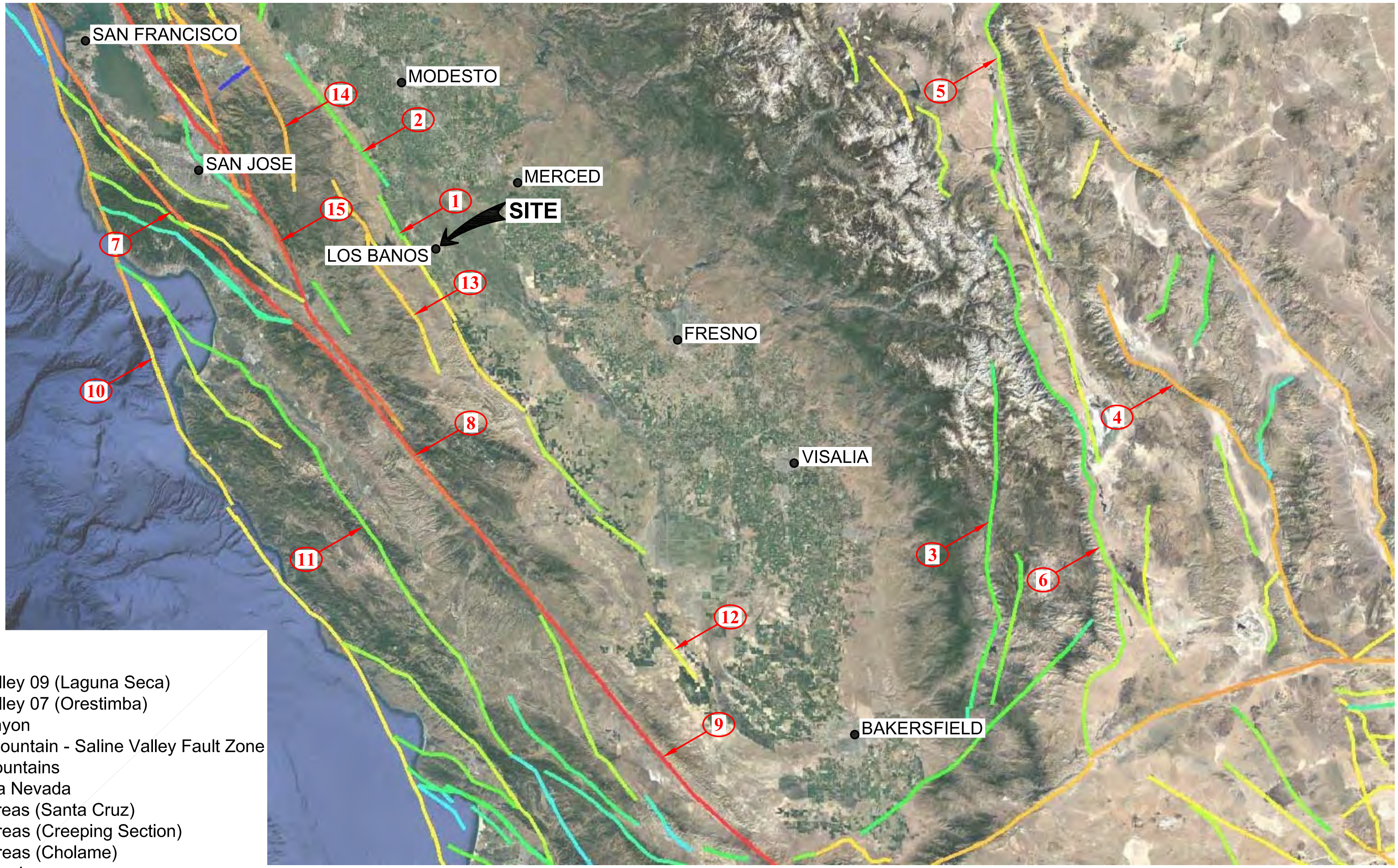
PROJECT: 230167	CROSS SECTION B-B' PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER - LOS BANOS USD EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 6
CAD BY: MH		





TECHNICON ENGINEERING SERVICES, INC.

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 230167 SOURCE: CGS	EPICENTER MAP PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER - LOS BANOS USD EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 7 NTS



FAULTS

1. Great Valley 09 (Laguna Seca)
2. Great Valley 07 (Orestimba)
3. Kern Canyon
4. Hunter Mountain - Saline Valley Fault Zone
5. White Mountains
6. SO Sierra Nevada
7. San Andreas (Santa Cruz)
8. San Andreas (Creeping Section)
9. San Andreas (Cholame)
10. San Gregorio
11. Reliz
12. Lost Hills
13. Ortigalita
14. Greenville
15. Calaveras

NORTH

TECHNICON ENGINEERING SERVICES, INC.

PROJECT: 230167	DATE: 8/11/23	REGIONAL FAULT ACTIVITY MAP PROPOSED TRANSITIONAL KINDERGARTEN (TK) CENTER LOS BANOS UNIFIED SCHOOL DISTRICT EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	FIGURE 8 NTS
SOURCE: WGCEP	APPROVED BY: AA		

BORING LOGS AND LOG KEY

APPENDIX A

TECHNICON Engineering Services, Inc.
4539 N. Brawley Avenuue #108
Fresno, California 93722
Telephone: 559.276.9311

KEY TO SYMBOLS

PROJECT NAME Proposed Transitional Kindergarten Center
DATE OF EXPLORATION 7/7/2023
PROJECT LOCATION Los Banos, California
PROJECT NUMBER 230167

LITHOLOGIC SYMBOLS (Unified Soil Classification System)

Symbol	Description
	FILL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
PT	PEAT
OL	LOW PLASTICITY ORGANIC SILT
OH	HIGH PLASTICITY ORGANIC SILT
ML	LOW PLASTICITY SILT
MH	HIGH PLASTICITY SILT
GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
CL	LOW PLASTICITY CLAY
CH	HIGH PLASTICITY CLAY

SAMPLER SYMBOLS

- STANDARD PENETRATION TEST
- CALIFORNIA SAMPLER
- MODIFIED CALIFORNIA SAMPLER
- SHELBY TUBE SAMPLER
- ROCK CORE BARREL
- BULK SAMPLE

- Water Level at Time of Drilling
- Water Level at End of Drilling
- Water Level After 24 Hours
- Assumed stratum line
- Observed stratum line

Note 1: The degree of saturation shown on the boring logs is based on an assumed specific gravity of 2.65. The actual degree of saturation may vary.

Note 2: The stratum lines shown on the logs represent the approximate boundary between soil types; the actual in-situ transition may be gradual.

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
S - DEGREE OF SATURATION (%)
NP - NON PLASTIC
200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)
ND - NOT DETECTED

TV -TORVANE
PID -PHOTOIONIZATION DETECTOR
UC -UNCONFINED COMPRESSION
ppm -PARTS PER MILLION
TPH-d -TOTAL PETROLEUM HYDROCARBON AS DIESEL
TPH-mo -TOTAL PETROLEUM HYDROCARBON AS MOTOR OIL

TECHNICON Engineering Services, Inc.
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Fresno, California 93722
Telephone: 559.276.9311

BORING B-1

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 21.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, brown, moist, medium plasticity				
	CAL	4-6-13 (19)			118.5	14.9	S = 100 %	
	GB							
5	SPT	6-7-9 (16)		Very stiff				
10	CAL	13-35-33 (68)		Hard	109.0	17.4	S = 89 %	
				Sandy SILT (ML) - stiff, brown, moist				
15	SPT	4-5-6 (11)						
				Poorly Graded SAND (SP) - medium dense, brown, moist, medium to coarse grained				
20	CAL	7-10-13 (23)			96.6	3.0	S = 11 %	

NOTES:
1. Bottom of boring at 21.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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Telephone: 559.276.9311

BORING B-2

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 21.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	3-9-12 (21)	CL	**Sandy CLAY (CL)** - stiff, dark brown, moist, medium plasticity	104.3	12.2	S = 55 %	
	GB							
5	CAL	3-7-10 (17)		Very stiff	117.5	14.9	S = 97 %	
10	SPT	4-4-5 (9)		Stiff				
			ML	**Sandy SILT (ML)** - stiff, brown, moist				
15	CAL	9-9-10 (19)			101.6	4.9	S = 21 %	
			SP	**Poorly Graded SAND (SP)** - medium dense, brown, moist, medium to coarse grained				
20	SPT	5-6-8 (14)						

NOTES:
1. Bottom of boring at 21.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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Telephone: 559.276.9311

BORING B-3

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 16.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, dark brown, moist, medium plasticity				
	CAL	7-9-9 (18)			113.8	11.1	S = 65 %	
5	SPT	6-9-11 (20)		Very stiff				
10	CAL	33-30-36 (66)		Hard, weak cementation	103.8	16.8	S = 75 %	
				Poorly Graded SAND (SP) - medium dense, brown, moist, medium to coarse grained				
15	SPT	3-3-4 (7)						

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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BORING B-4

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 16.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - very stiff, dark brown, moist, medium plasticity				
	CAL	4-8-16 (24)			109.8	15.4	S = 81 %	
5	CAL	6-7-21 (28)			112.8	11.2	S = 64 %	
10	SPT	8-11-14 (25)						
				Poorly Graded SAND (SP) - medium dense, brown, moist, medium to coarse grained				
15	CAL	7-10-9 (19)			94.2	10.0	S = 35 %	

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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BORING B-5

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 16.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, dark brown, moist, medium plasticity				
	GB CAL	6-8-10 (18)			113.1	10.7	S = 61 %	
5	SPT	5-7-13 (20)		Very stiff				
10	CAL	8-12-15 (27)			115.3	11.3	S = 69 %	
				Poorly Graded SAND (SP) - medium dense, brown, moist, medium to coarse grained				
15	SPT	3-5-4 (9)						

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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BORING B-6

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/7/23 **COMPLETED** 7/7/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 16.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	3-4-8 (12)		**Sandy CLAY (CL)** - stiff, brown, moist, medium plasticity	105.2	14.4	S = 67 %	
5	CAL	10-10-9 (19)			96.7	9.3	S = 35 %	
10	SPT	7-6-9 (15)						
				Sandy SILT (ML) - stiff, brown, moist				
15	CAL	7-10-11 (21)			104.3	12.9	S = 58 %	

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

BOREHOLE - TECHNICON.GDT - 8/7/23 09:42 - Z:\TESDATA\PROJECTS\230100-230199\230167 TRANSITIONAL KINDER-(TK) CENTER LOS BANOS USD\REPORTS\230167 - GINT.GPJ

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BORING B-7

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/13/23 **COMPLETED** 7/13/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 29 ft / Elev -29 ft
DRILL RIG TYPE SIMCO
BORING DEPTH 51.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, brown, moist, medium plasticity				
	CAL	6-5-7 (12)			90.9	9.7	S = 32 %	
	GB							
5	CAL	6-15-18 (33)		Very stiff	105.7	16.6	S = 78 %	
10	SPT	10-18-21 (39)		Hard				
				Silty SAND (SM) - medium dense, brown, moist, fine to medium grained				
15	CAL	6-9-13 (22)			99.8	5.0	S = 20 %	
20	SPT	9-12-12 (24)						
				Sandy SILT (ML) - very stiff, brown, moist				
25	CAL	10-15-15 (30)			111.6	16.2	S = 89 %	
				Silty SAND (SM) - medium dense, brown, moist				
				∇ Wet				
30	SPT	4-9-11 (20)						
35								

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BORING B-7

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/13/23 **COMPLETED** 7/13/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 29 ft / Elev -29 ft
DRILL RIG TYPE SIMCO
BORING DEPTH 51.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	11-11-4 (15)		**Silty SAND (SM)** - medium dense, brown, moist *(continued)*	105.8	20.5	S = 97 %	
40	SPT	10-11-10 (21)						
				Sandy SILT (ML) - very stiff, brown, wet				
45	CAL	9-13-11 (24)			108.4	21.7	S = 110 %	
50	SPT	6-5-3 (8)		Stiff				

NOTES:
1. Bottom of boring at 51.5 feet.
2. Groundwater encountered at 29.0 feet.
3. Boring backfilled with neat cement grout.

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BORING B-8

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/13/23 **COMPLETED** 7/13/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 21.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0			**Sandy CLAY (CL)** - very stiff, brown, moist, medium plasticity				
	GB CAL	6-20-20 (40)		115.8	10.9	S = 68 %	
5	SPT	6-11-13 (24)					
10	CAL	16-27-39 (66)	Hard	102.1	18.1	S = 77 %	
			Sandy SILT (ML) - stiff, brown, moist				
15	SPT	5-6-6 (12)					
20	CAL	14-25-22 (47)	Hard	118.0	15.0	S = 99 %	

NOTES:
1. Bottom of boring at 21.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

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BORING B-9

PROJECT NAME Proposed Transitional Kindergarten Center
PROJECT NUMBER 230167
PROJECT LOCATION Los Banos, California
SURFACE DESCRIPTION bare soil
DATE STARTED 7/13/23 **COMPLETED** 7/13/23
GROUND ELEVATION 0 ft
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE SIMCO
BORING DEPTH 16.5 ft
DRILLING METHOD Solid Flight Auger
LOGGED BY W. Juan de Dios **CHECKED BY** A. AhTye

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - very stiff, brown, moist, medium plasticity				
	CAL	3-13-11 (24)			105.3	10.0	S = 46 %	
5	SPT	6-9-13 (22)						
				Poorly Graded SAND (SP) - medium dense, brown, moist, medium to coarse grained				
10	CAL	8-10-18 (28)			91.3	3.2	S = 10 %	
				Silty SAND (SM) - medium dense, brown, moist, fine to medium grained				
15	SPT	8-4-6 (10)						

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with auger cuttings.

PREVIOUS BORING LOGS

APPENDIX B

Technicon Engineering Services, Inc
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Fax: (559) 276-9344

BORING B-1

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Mud Rotary
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	4-10-13 (23)		**Sandy CLAY (CL)** - stiff, dark brown, moist, with fine sand	110.3	8.3	S = 44 %	
	GB							
				Silty SAND (SM) - medium dense, brown, moist, fine grained, trace clay				
5	SPT	8-11-14 (25)						
				Clayey SILT (CL-ML) - hard, brown, moist, with fine sand				
10	CAL	12-20-29 (49)			104.9	17.6	S = 81 %	
15	SPT	4-5-6 (11)		**Poorly Graded SAND WITH SILT (SP-SM)** - medium dense, brown, moist, fine to medium grained				
20	CAL	10-16-20 (36)		Dense, fine to coarse grained	96.3	9.4	S = 35 %	
				Sandy CLAY (CL) - very stiff, light brown, moist, with fine sand, with silt				
25	SPT	9-13-17 (30)				17.3		
30	CAL	10-13-17 (30)		Increased sand, white staining	101.8	23.0	S = 98 %	
				Sandy SILT (ML) - soft, brown, wet, with clay				
35								

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BORING B-1

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Mud Rotary
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	2-2-2 (4)		**Sandy SILT (ML)** - soft, brown, wet, with clay *(continued)*				
	CAL	4-5-7 (12)		Medium stiff				
40	CAL	5-8-8 (16)			88.3	33.4	S = 104 %	
				Sandy CLAY (CL) - medium stiff, brown, wet, some silt				
	CAL	6-8-10 (18)		Stiff	88.2	33.1	S = 100 %	
45				**Sandy SILT (ML)** - stiff, brown, wet, with fine sand, with clay				
	SPT	3-5-5 (10)				25.3		
				Silty SAND (SM) - medium dense, brown, wet, fine to medium grained				
50	CAL	9-13-20 (33)			103.9	22.4	S = 100 %	

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

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BORING B-2

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 16.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - very stiff, dark brown, moist, with silt				
	GB CAL	7-13-16 (29)			107.1	10.5	S = 51 %	
5	SPT	8-10-11 (21)		Brown				
				Sandy SILT (ML) - very stiff, brown, moist, trace clay				
10	CAL	13-13-16 (29)			106.4	18.1	S = 87 %	
				Silty SAND (SM) - medium dense, brown, moist, fine to medium grained				
15	SPT	3-6-6 (12)						

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

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BORING B-3

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 21.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	9-13-20 (33)		**Sandy CLAY (CL)** - very stiff, dark brown, moist, with silt, with medium sand	105.7	13.7	S = 64 %	
5	CAL	14-23-25 (48)		Hard, brown, increased sand	121.9	10.2	S = 76 %	
				Sandy SILT (ML) - very stiff, brown, moist, some clay, with fine sand				
10	SPT	5-10-15 (25)						
15	CAL	12-13-22 (35)						
				Silty SAND (SM) - medium dense, brown, moist, fine to medium grained, weak cementation				
20	SPT	4-6-6 (12)						

NOTES:
1. Bottom of boring at 21.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

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BORING B-4

PROJECT NAME Alternative Education School | **PROJECT NUMBER** 160421
PROJECT LOCATION Los Banos, CA | **SURFACE DESCRIPTION** Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16 | **GROUND ELEVATION**
DRILLING CONTRACTOR TECHNICON Engineering Services | **GROUND WATER LEVEL** No groundwater encountered.
DRILL RIG TYPE CME 75 | **BORING DEPTH** 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger | **LOGGED BY** S. Athwal | **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	GB			**Sandy CLAY (CL)** - stiff, dark brown, moist, some silt				
	CAL	8-10-10 (20)			91.3	9.1	S = 30 %	
5	SPT	9-10-10 (20)						
				Clayey SAND (SC) - medium dense, brown, moist, fine to medium grained				
10				**Clayey SILT (CL-ML)** - hard, light brown, moist, with fine sand, moderate cementation				
	CAL	29-32-50/3"			121.0	6.8	S = 49 %	
15				**Sandy SILT (ML)** - stiff, brown, moist, trace clay				
	SPT	5-6-7 (13)						
				Silty SAND (SM) - medium dense, brown, moist, fine to coarse grained, trace clay				
20	CAL	7-9-11 (20)			95.6	11.6	S = 42 %	
25				**Sandy CLAY (CL)** - very stiff, brown, moist, with fine sand				
	SPT	7-11-16 (27)						
30	CAL	11-18-27 (45)		Hard, with fine to coarse sand	99.7	25.1	S = 101 %	
				Silty SAND (SM) - medium dense, brown, wet, fine to medium grained				
35								

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Telephone: (559) 276-9311
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BORING B-4

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	3-5-8 (13)		**Silty SAND (SM)** - medium dense, brown, wet, fine to medium grained *(continued)*				
				Sandy CLAY (CL) - stiff, brown, wet, some silt				
40	CAL	5-6-7 (13)			96.4	29.1	S = 108 %	
45	SPT	4-7-17 (24)		Increased sand	110.7	19.5	S = 105 %	
50	CAL	8-21-19 (40)		Hard				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

Technicon Engineering Services, Inc
4539 N. Brawley Avenue #108
Fresno, CA 93622
Telephone: (559) 276-9311
Fax: (559) 276-9344

BORING B-5

PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 21.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, dark brown, moist, some silt				
	CAL	4-8-9 (17)			84.5	13.5	S = 37 %	
				Clayey SILT (CL-ML) - hard, light brown, moist, with fine sand				
5	CAL	13-19-25 (44)			113.2	9.9	S = 57 %	
10				**Sandy SILT (ML)** - medium stiff, light brown, moist				
	SPT	4-5-6 (11)						
15	CAL	10-12-18 (30)						
				Silty SAND (SM) - medium dense, brown, moist, fine to medium grained				
				Poorly Graded SAND WITH SILT (SP-SM) - medium dense, brown, moist, fine to coarse grained				
20	SPT	3-6-6 (12)						

NOTES:
1. Bottom of boring at 21.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

Technicon Engineering Services, Inc
4539 N. Brawley Avenue #108
Fresno, CA 93622
Telephone: (559) 276-9311
Fax: (559) 276-9344

BORING B-6

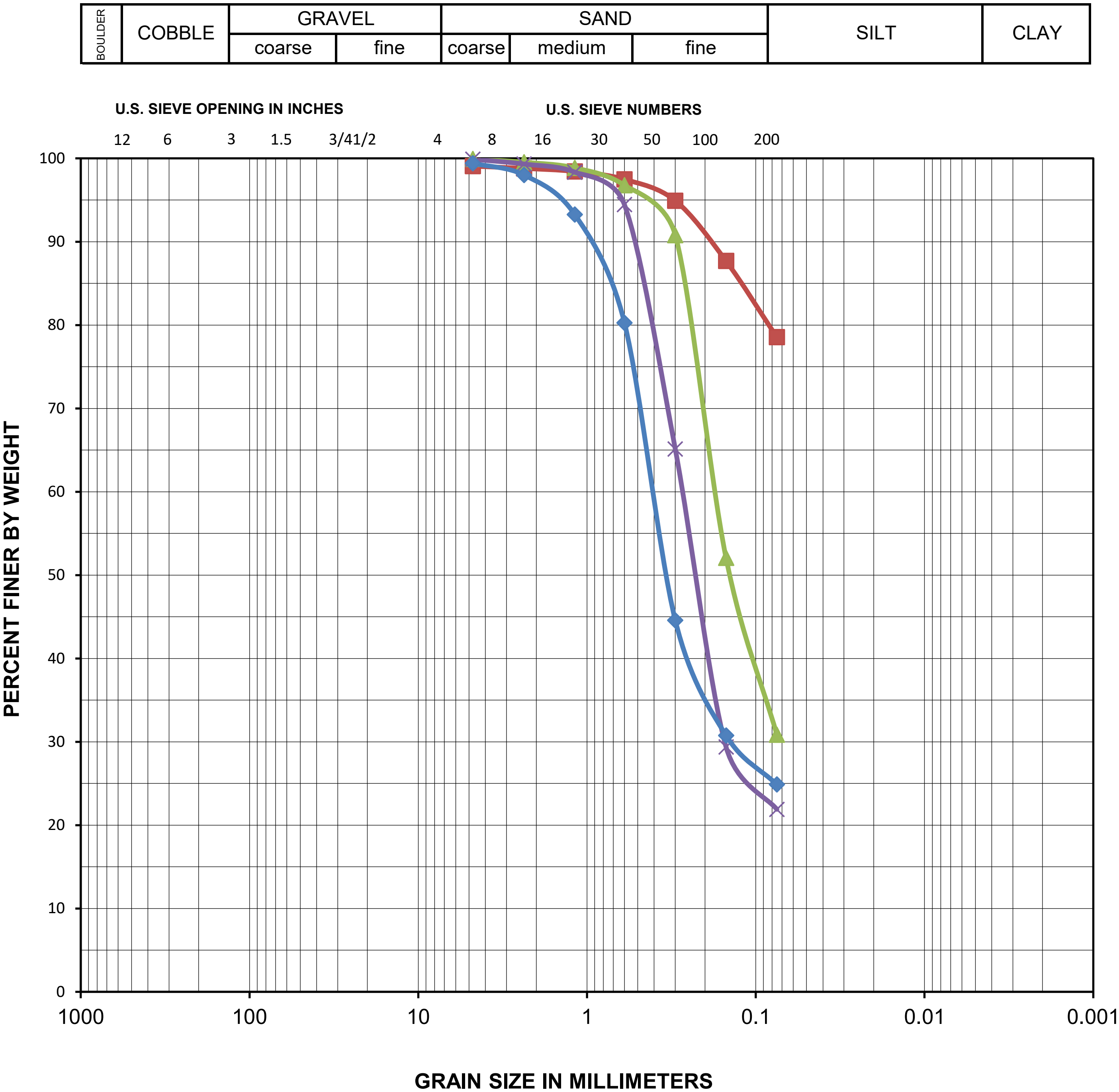
PROJECT NAME Alternative Education School
PROJECT NUMBER 160421
PROJECT LOCATION Los Banos, CA
SURFACE DESCRIPTION Uneven Surface with Heavy Vegetaion
DATE STARTED 6/2/16 **COMPLETED** 6/2/16
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 75
BORING DEPTH 16.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Athwal **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Sandy CLAY (CL)** - stiff, dark brown, moist, with silt, some gravel				
	CAL	4-7-9 (16)			106.7	11.2	S = 54 %	
5	SPT	9-10-11 (21)		**Clayey SAND (SC)** - medium dense, brown, moist, fine grained				
				Clayey SILT (CL-ML) - hard, brown, moist, with fine sand, moderate cementation				
10	CAL	13-28-50 (78)			102.8	14.6	S = 63 %	
15	SPT	4-5-6 (11)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				

NOTES:
1. Bottom of boring at 16.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 6/2/16.

LABORATORY TESTS

APPENDIX C



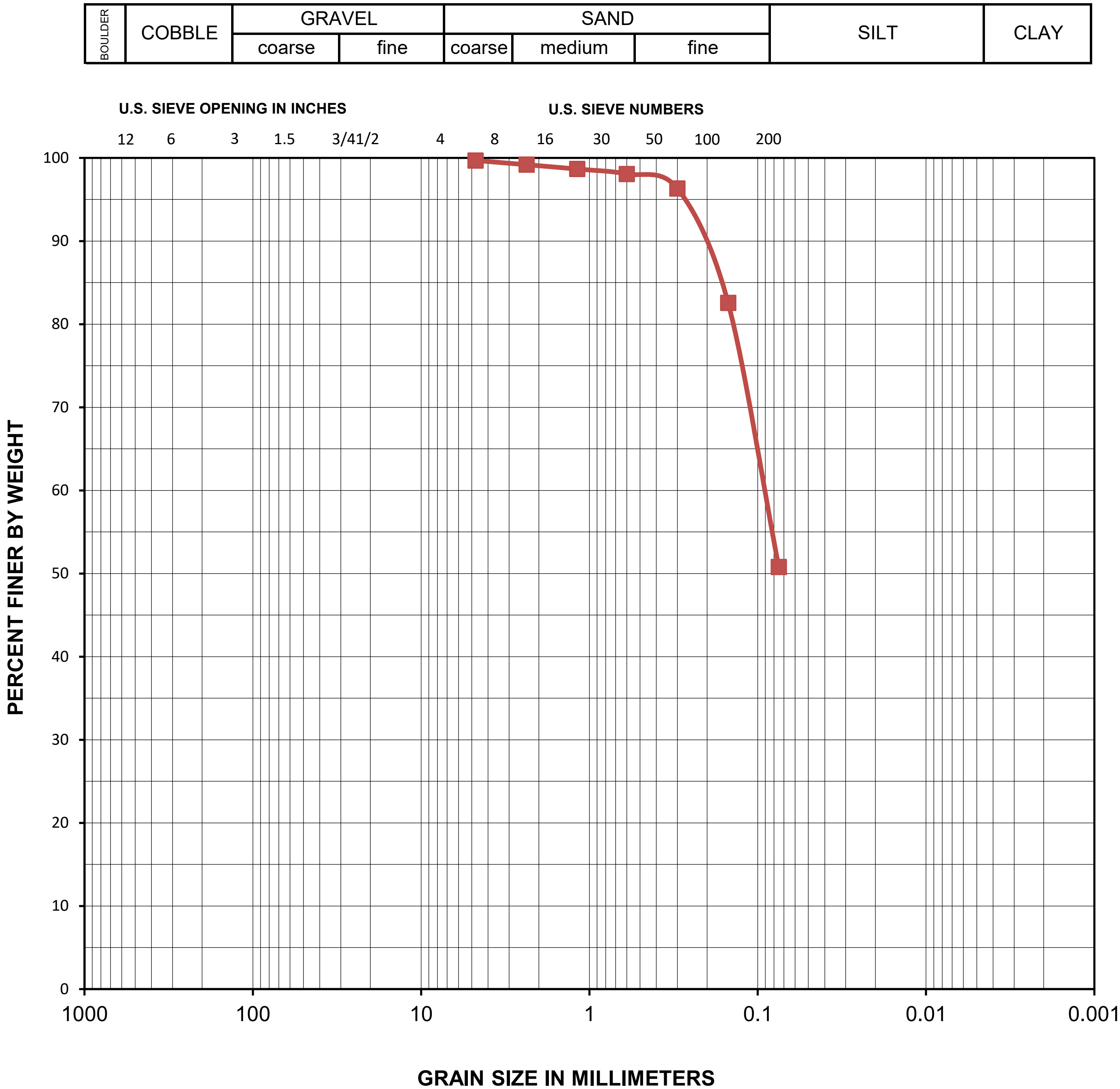
Boring	Depth (ft.)	Sample Description	Passing 3/4"	Passing #4	Passing #200
B-1	0-5	Sandy CLAY (CL)	100.0	99.1	78.5
B-5	15	Silty SAND (SM)	100.0	99.9	30.9
B-7	20	Silty SAND (SM)	100.0	99.9	21.9
B-7	30	Silty SAND (SM)	100.0	99.4	24.9

PROJECT NO.:	230167
LAB TECH:	SA
INPUT BY:	SA
CHECKED BY:	SA
DATE:	8/7/2023
REVISED:	-

SIEVE ANALYSIS

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON
ENGINEERING SERVICES, INC.



Boring	Depth (ft.)	Sample Description	Passing 3/4"	Passing #4	Passing #200
B-7	50	Sandy SILT (ML)	100.0	99.7	50.8

PROJECT NO.:	230167
LAB TECH:	SA
INPUT BY:	SA
CHECKED BY:	SA
DATE:	8/7/2023
REVISED:	-

SIEVE ANALYSIS

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON
ENGINEERING SERVICES, INC.

Boring	Depth (ft.)	Sample Description
B-1	0-5	Sandy CLAY (CL)

Moisture		
Wet Weight (g)	Dry Weight (g)	Water Content (%)
200.0	180.39	10.9

Soil Specimen		
Mold Weight (g)	Soil + Mold Weight (g)	Soil Weight (g)
367.6	754.6	387.0
Mold Diameter (in)	Mold Height (in)	Mold Volume (ft^3)
4.0	1.0	12.57
Moist Density (pcf)	Dry Density (pcf)	Saturation (%)
116.7	105.3	48.9

Expansion		
Initial Reading (in)	Final Reading (in)	Expansion (in)
0.0000	0.0637	0.0637

Expansion Index, EI	
$EI_{measured}$	EI_{50}
63.7	62.9

Expansion Index, EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
> 130	Very High

Testing performed in general accordance with ASTM D4829

PROJECT NO	230167	EXPANSION INDEX	TECHNICON ENGINEERING SERVICES, INC.
LAB TECH:		PROPOSED TRANSITIONAL KINDERGARTEN CENTER EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	
INPUT BY:	AA		
CHECKED BY	SA		
DATE:	8/7/2023		
REVISED:	-		

Boring	Depth (ft.)	Sample Description
B-8	0-5	Sandy CLAY (CL)

Moisture		
Wet Weight (g)	Dry Weight (g)	Water Content (%)
200.0	181.71	10.1

Soil Specimen		
Mold Weight (g)	Soil + Mold Weight (g)	Soil Weight (g)
363.9	751.6	387.7
Mold Diameter (in)	Mold Height (in)	Mold Volume (ft^3)
4.0	1.0	12.57
Moist Density (pcf)	Dry Density (pcf)	Saturation (%)
116.9	106.2	46.4

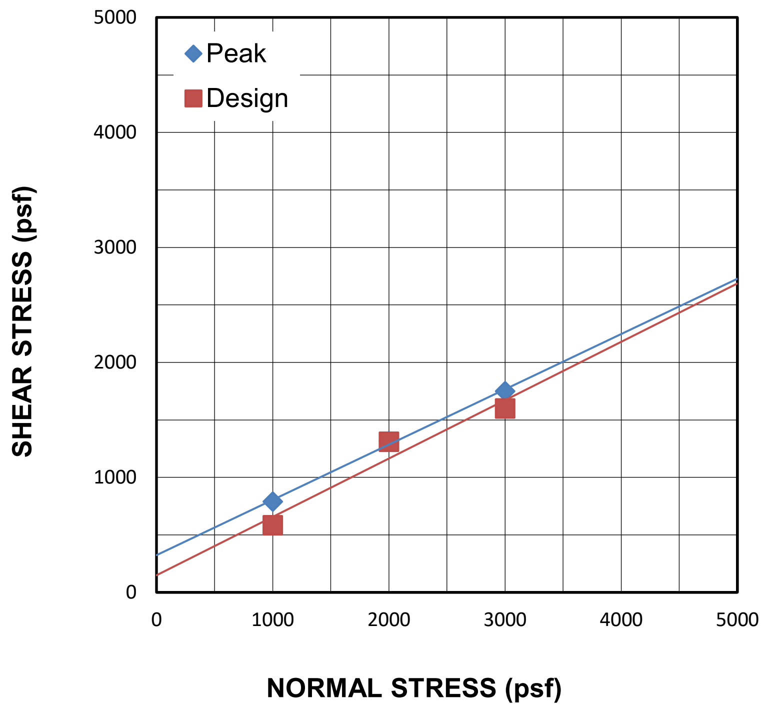
Expansion		
Initial Reading (in)	Final Reading (in)	Expansion (in)
0.0000	0.0647	0.0647

Expansion Index, EI	
$EI_{measured}$	EI_{50}
64.7	62.0

Expansion Index, EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
> 130	Very High

Testing performed in general accordance with ASTM D4829

PROJECT NO 230167	EXPANSION INDEX	TECHNICON ENGINEERING SERVICES, INC.
LAB TECH:	PROPOSED TRANSITIONAL KINDERGARTEN CENTER	
INPUT BY: AA	EAST B STREET AND PLACE ROAD	
CHECKED BY SA	LOS BANOS, CALIFORNIA	
DATE: 8/7/2023		
REVISED: -		



	Depth (ft.)	Sample Description
B-2	0	Sandy CLAY (CL)

	Specimen No.	Dry Unit Weight (pcf)	Water Content (%)	Saturation (%)	Area (in^2)	Height (in)
Initial	1	104.3	12.2	55.2	4.60	1.00
	2	104.3	12.2	55.2	4.60	1.00
	3	104.3	12.2	55.2	4.60	1.00
At Test	**Specimen No.**	**Dry Unit Weight (pcf)**	**Water Content (%)**	**Saturation (%)**	**Area (in^2)**	**Height (in)**
	1	107.2	24.55	119.8	4.60	0.973
	2	106.5	21.67	103.8	4.60	0.979
	3	106.7	20.05	96.6	4.60	0.977

Specimen No.	Peak Shear Stress (psf)	Design Shear Stress (psf)	Normal Stress (psf)	Strain Rate (in/min)
1	788.8	582.6	1000	0.002
2	1315.3	1310.0	2000	0.002
3	1750.3	1597.6	3000	0.002

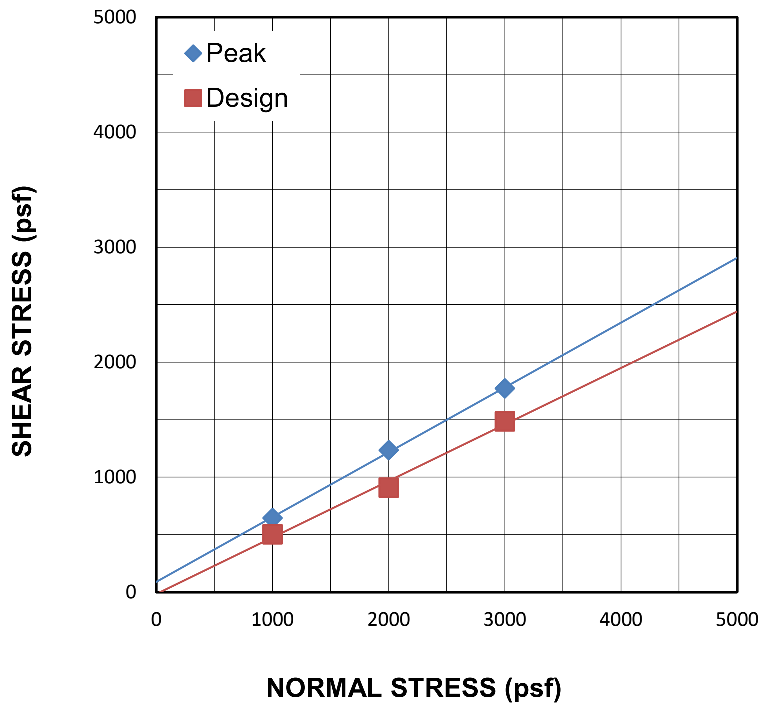
Results	Cohesion (psf)	Friction ϕ (deg)
Peak	323	25.7
Design	148	26.9

PROJECT NO	230167
LAB TECH:	
INPUT BY:	AA
CHECKED BY	SA
DATE:	8/7/2023
REVISED:	-

DIRECT SHEAR

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON
ENGINEERING SERVICES, INC.



	Depth (ft.)	Sample Description
B-7	1	Sandy CLAY (CL)

	Specimen No.	Dry Unit Weight (pcf)	Water Content (%)	Saturation (%)	Area (in^2)	Height (in)
Initial	1	90.9	9.7	31.4	4.60	1.00
	2	90.9	9.7	31.4	4.60	1.00
	3	90.9	9.7	31.4	4.60	1.00
At Test	Specimen No.	Dry Unit Weight (pcf)	Water Content (%)	Saturation (%)	Area (in^2)	Height (in)
	1	94.2	24.98	87.6	4.60	0.964
	2	94.6	20.27	71.8	4.60	0.959
	3	94.2	23.17	81.2	4.60	0.964

Specimen No.	Peak Shear Stress (psf)	Design Shear Stress (psf)	Normal Stress (psf)	Strain Rate (in/min)
1	643.1	503.1	1000	0.002
2	1234.4	909.0	2000	0.002
3	1770.3	1486.0	3000	0.002

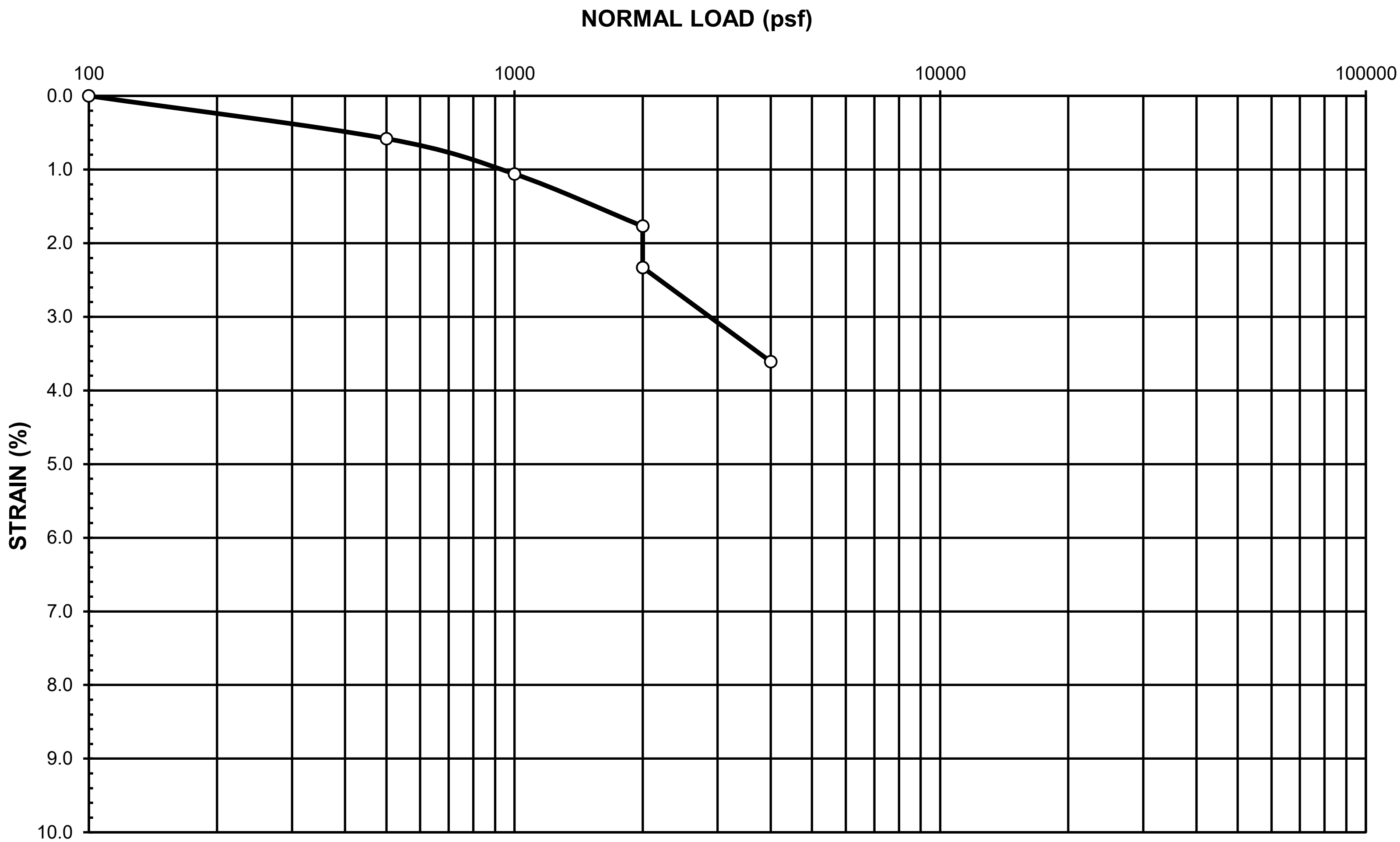
Results	Cohesion (psf)	Friction ϕ (deg)
Peak	89	29.4
Design	0	26.2

PROJECT NO	230167
LAB TECH:	
INPUT BY:	AA
CHECKED BY	SA
DATE:	8/7/2023
REVISED:	-

DIRECT SHEAR

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON
ENGINEERING SERVICES, INC.



Boring	Depth (ft)	Sample Description
B-4	5.0	Sandy CLAY (CL)

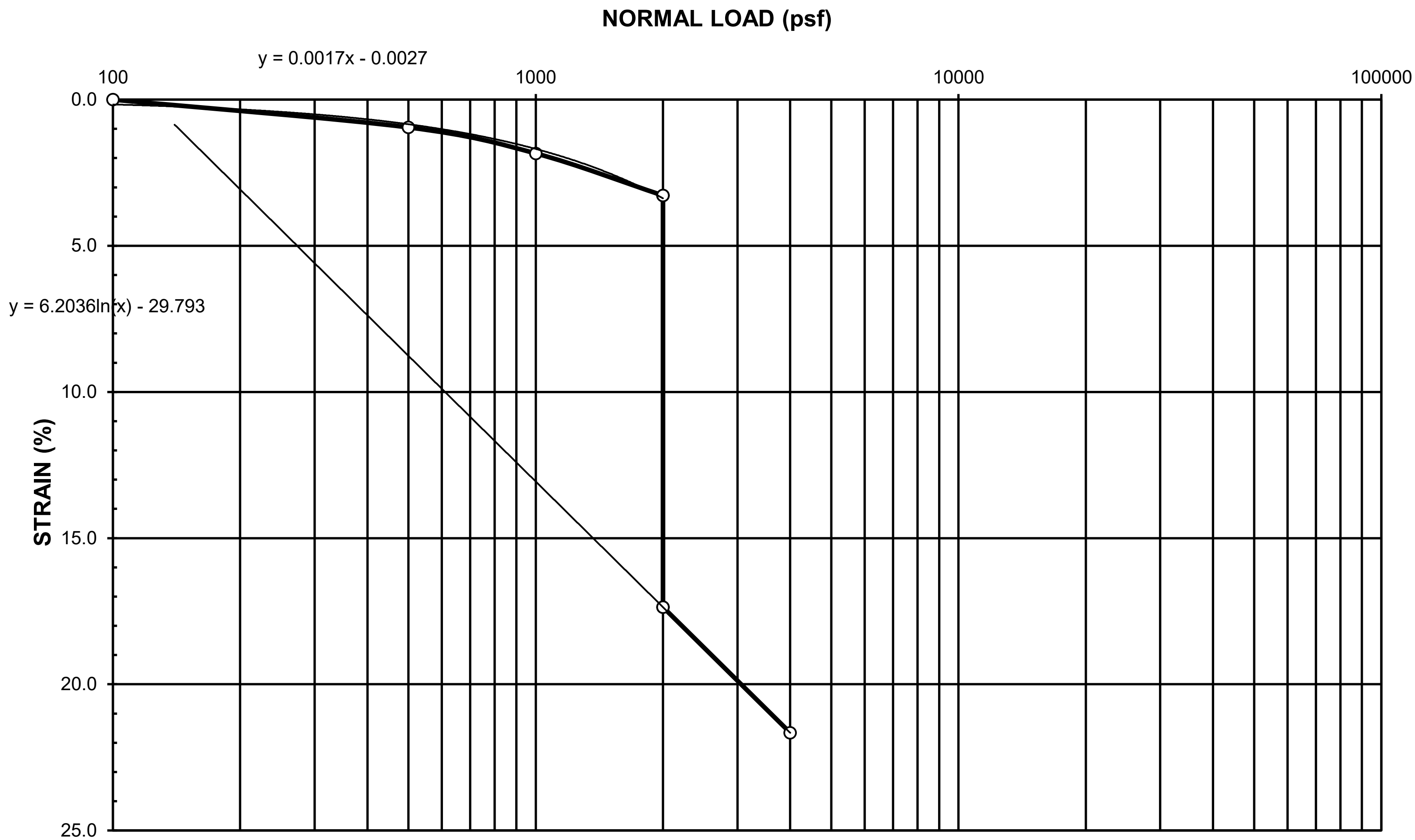
	Sample Diameter (in)	Sample Height (in)	Moisture Content (%)	Dry Density (pcf)
Initial	2.42	1.0000	11.2	110.0
Final	2.42	0.9639	21.6	114.2

PROJECT NO.:	230167
LAB TECH:	RJ
INPUT BY:	AA
CHECKED BY:	SA
DATE:	8/7/2023
REVISED:	-

COLLAPSE POTENTIAL

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON
ENGINEERING SERVICES, INC.



Boring	Depth (ft)	Sample Description
B-7	1.0	Sandy CLAY (CL)

	Sample Diameter (in)	Sample Height (in)	Moisture Content (%)	Dry Density (pcf)
Initial	2.42	1.0000	9.8	89.3
Final	2.42	0.7834	21.2	114.0

PROJECT NO.:	230167
LAB TECH:	RJ
INPUT BY:	AA
CHECKED BY:	SA
DATE:	8/7/2023
REVISED:	-

COLLAPSE POTENTIAL

PROPOSED TRANSITIONAL KINDERGARTEN CENTER
EAST B STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

TECHNICON ENGINEERING SERVICES, INC.

Boring	Depth (ft)	Sample Description
B-1	0-5	Sandy CLAY (CL)

MINIMUM RESISTIVITY

Water Added (ml)	0	150	250	350	450				
Resistance (ohm)	1,000,000	770	590	500	610				
Resistivity (ohm-cm)*	1,065,000	820	628	533	650				

Box Constant=1.065

Minimum Resistivity (ohm-cm)	533
pH	7

Years to perforation*	13

* Caltrans California Test 643 - Method for Estimating the Service Life of Steel Culverts

CHEMICAL ANALYSIS

	Soluble Sulfate SO_4-S	Soluble Chloride Cl
	23 mg/kg	5.3 mg/kg
	23.9 mg/kg	5.3 mg/kg
	25.2 mg/kg	3.5 mg/kg
Average	24.0 mg/kg	4.7 mg/kg

Testing performed in general accordance with California Test Method Nos. 643, 417, and 422

PROJECT NO.:	230167	CORROSIVITY TESTS	TECHNICON ENGINEERING SERVICES, INC.
LAB TECH:			
INPUT BY:	AA	ROPOSED TRANSITIONAL KINDERGARTEN CENTE EAST B STREET AND PLACE ROAD LOS BANOS, CALIFORNIA	
CHECKED BY:	SA		
DATE:	8/7/2023		
REVISED:	-		

Boring	Depth (ft)	Sample Description
B-8	0-5	Sandy CLAY (CL)

MINIMUM RESISTIVITY

Water Added (ml)	0	150	250	350	450				
Resistance (ohm)	1,000,000	1,400	820	710	900				
Resistivity (ohm-cm)*	1,065,000	1,491	873	756	959				

Box Constant=1.065

Minimum Resistivity (ohm-cm)	756
pH	7.5

Years to perforation*	22

* Caltrans California Test 643 - Method for Estimating the Service Life of Steel Culverts

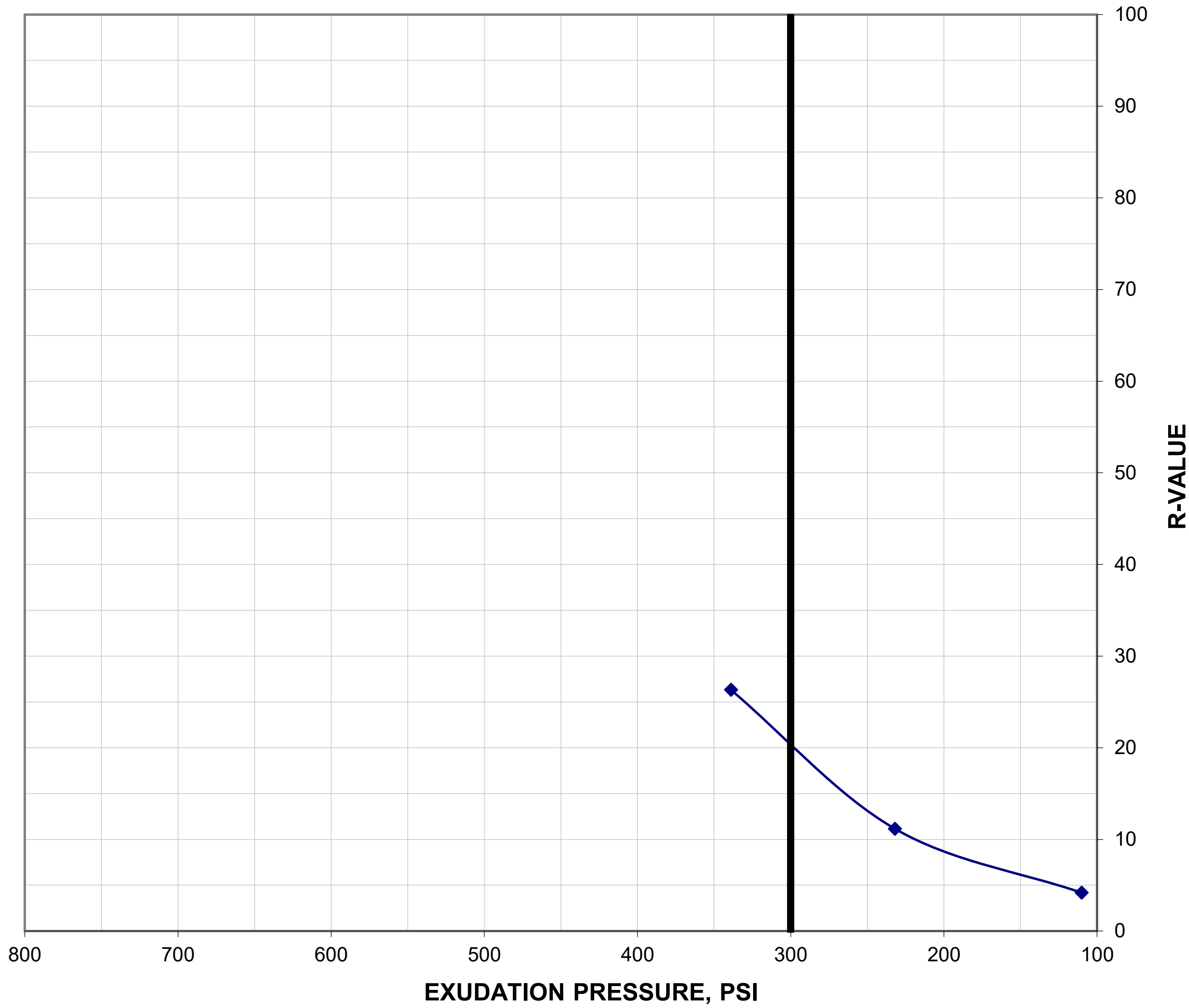
CHEMICAL ANALYSIS

	Soluble Sulfate SO_4-S	Soluble Chloride Cl
	13.7 mg/kg	3.5 mg/kg
	15.5 mg/kg	3.5 mg/kg
	14.6 mg/kg	3.5 mg/kg
Average	14.6 mg/kg	3.5 mg/kg

Testing performed in general accordance with California Test Method Nos. 643, 417, and 422

PROJECT NO.:	230167	CORROSIVITY TESTS
LAB TECH:		
INPUT BY:	AA	ROPOSED TRANSITIONAL KINDERGARTEN CENTE
CHECKED BY:	SA	EAST B STREET AND PLACE ROAD
DATE:	8/7/2023	LOS BANOS, CALIFORNIA
REVISED:	-	

TECHNICON ENGINEERING SERVICES, INC.

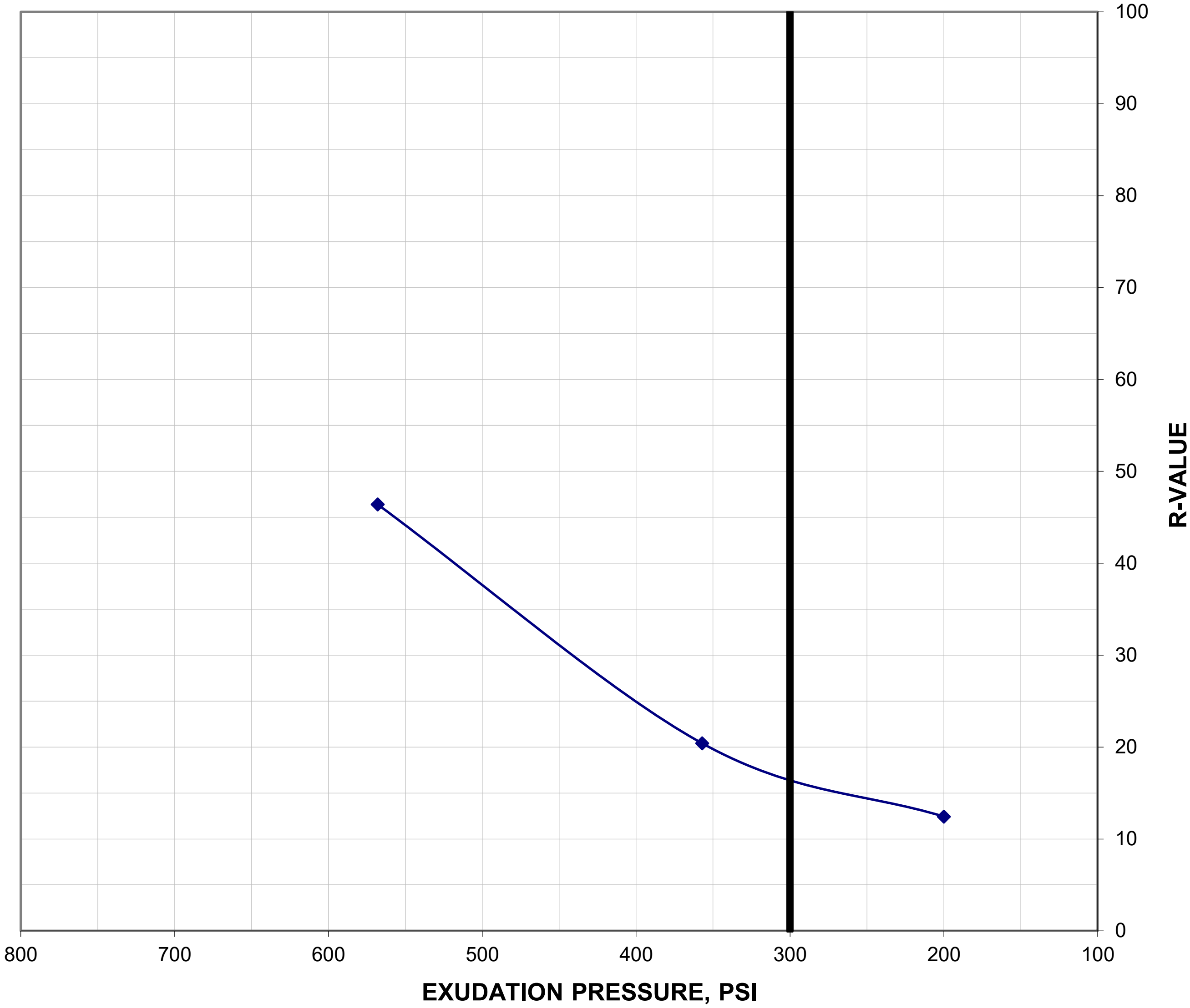


Boring	Depth (ft)	Sample Description
RV-1	0-5	Sandy CLAY (CL)

Specimen	1	2	3
Exudation Pressure (psi)	110	232	339
Moisture Content at Test (%)	20.1	16.6	14.8
Dry Density (pcf)	102.5	109.7	114.4
Expansion Pressure (psf)	30	74	121
R-Value by Stabilometer	4	11	26
R-Value by Expansion Pressure (TI = 4.5)	20		
R-Value at 300 psi Exudation Pressure	20		

Controlling R-Value	20

PROJECT NO:	230167	RESISTANCE VALUE	TECHNICON ENGINEERING SERVICES, INC.
LAB TECH:	JC		
INPUT BY:	AA	'OSED TRANSITIONAL KINDERGARTEN CE	
CHECKED BY:	SA	EAST B STREET AND PLACE ROAD	
DATE:	8/7/2023	LOS BANOS, CALIFORNIA	
REVISED:	-		

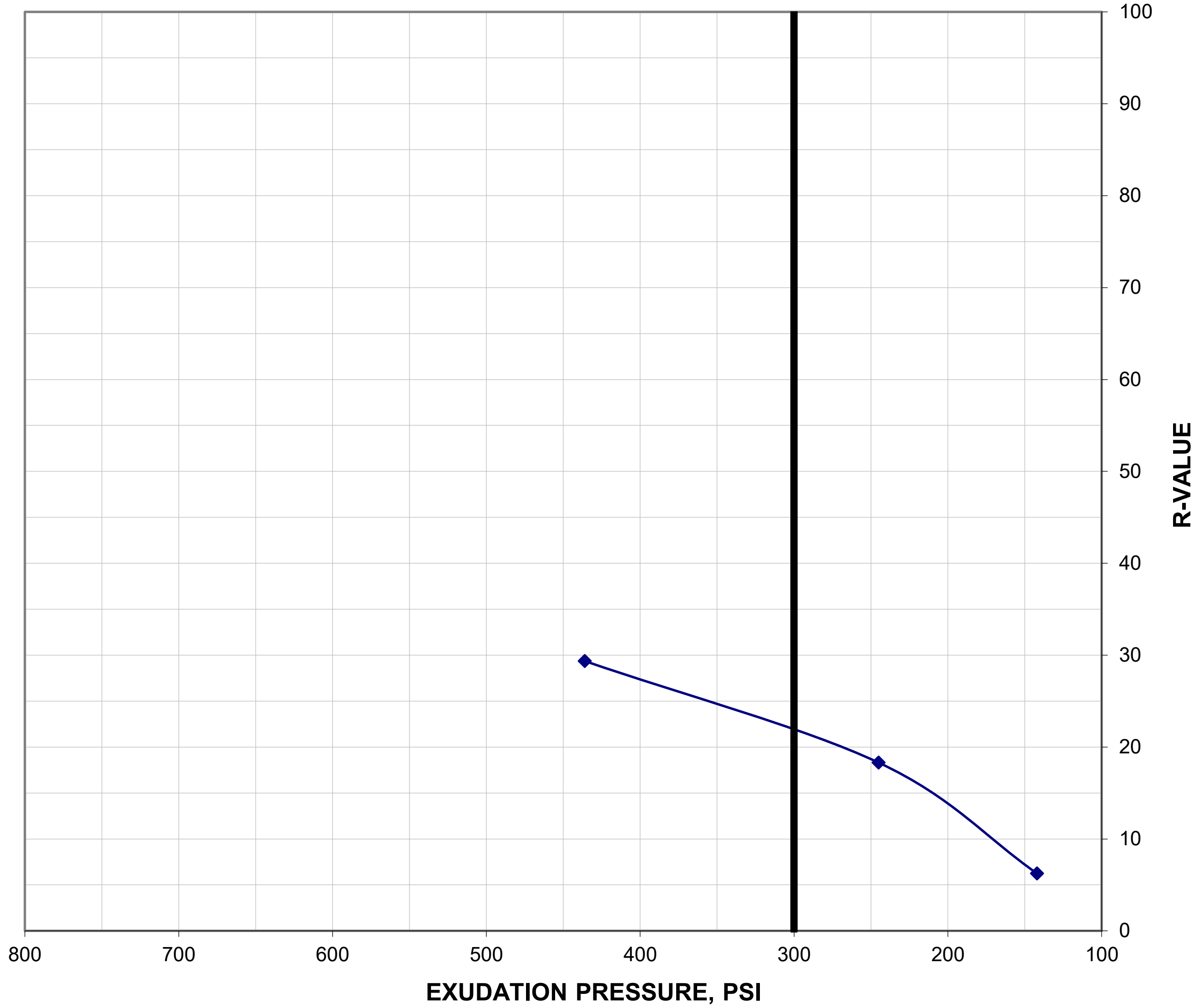


Boring	Depth (ft)	Sample Description
RV-2	0-5	Sandy CLAY (CL)

Specimen	1	2	3
Exudation Pressure (psi)	200	357	568
Moisture Content at Test (%)	20.9	18.7	16.2
Dry Density (pcf)	102.1	106.2	112.5
Expansion Pressure (psf)	100	268	524
R-Value by Stabilometer	12	20	46
R-Value by Expansion Pressure (TI = 4.5)	14		
R-Value at 300 psi Exudation Pressure	16		

Controlling R-Value	14

PROJECT NO: 230167	RESISTANCE VALUE	TECHNICON ENGINEERING SERVICES, INC.
LAB TECH: JC		
INPUT BY: AA	OSED TRANSITIONAL KINDERGARTEN CE	
CHECKED BY: SA	EAST B STREET AND PLACE ROAD	
DATE: 8/7/2023	LOS BANOS, CALIFORNIA	
REVISED: -		



Boring	Depth (ft)	Sample Description
RV-3	0-5	Sandy CLAY (CL)

Specimen	1	2	3
Exudation Pressure (psi)	142	245	436
Moisture Content at Test (%)	19.5	16.2	14.9
Dry Density (pcf)	104.7	112.5	115.3
Expansion Pressure (psf)	0	56	147
R-Value by Stabilometer	6	18	29
R-Value by Expansion Pressure (TI = 4.5)	20		
R-Value at 300 psi Exudation Pressure	23		

Controlling R-Value	20

PROJECT NO:	230167	RESISTANCE VALUE
LAB TECH:	JC	
INPUT BY:	AA	'OSED TRANSITIONAL KINDERGARTEN CE
CHECKED BY:	SA	EAST B STREET AND PLACE ROAD
DATE:	8/7/2023	LOS BANOS, CALIFORNIA
REVISED:	-	

TECHNICON ENGINEERING SERVICES, INC.

USGS DEAGGREGATION SUMMARIES

APPENDIX D

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Please also see the new USGS Earthquake Hazard Toolbox for access to the most recent NSHMs for the conterminous U.S. and Hawaii.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

37.0661

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes

-120.8277

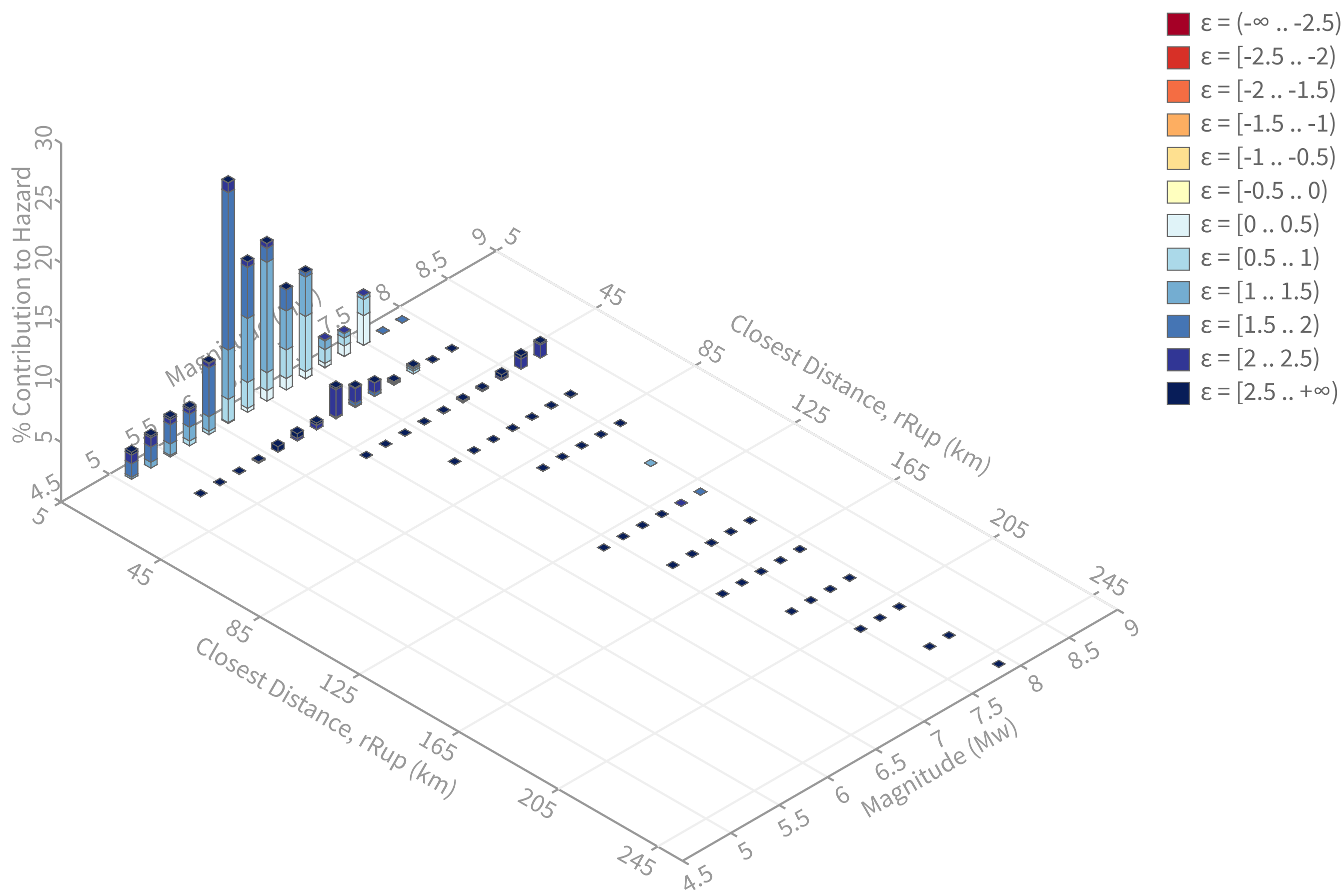
Site Class

760 m/s (B/C boundary)

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.49271457 g

Recovered targets

Return period: 2706.0507 yrs
Exceedance rate: 0.00036954223 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.12 %

Mean (over all sources)

m: 6.44
r: 14.1 km
ε_0: 1.42 σ

Mode (largest m-r bin)

m: 6.12
r: 12.13 km
ε_0: 1.55 σ
Contribution: 20.12 %

Mode (largest m-r-ε_0 bin)

m: 6.12
r: 12.8 km
ε_0: 1.68 σ
Contribution: 13.16 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							35.27
Great Valley 09 (Laguna Seca) [3]		12.50	6.47	1.32	120.925°W	37.017°N	237.81	22.00
Great Valley 09 (Laguna Seca) [5]		13.09	6.63	1.25	120.900°W	36.987°N	216.28	1.86
Great Valley 09 (Laguna Seca) [4]		12.53	6.64	1.18	120.919°W	37.010°N	232.20	1.82
Great Valley 09 (Laguna Seca) [6]		14.28	6.59	1.40	120.882°W	36.964°N	203.10	1.70
Ortigalita (North) [0]		20.93	6.57	2.31	121.050°W	37.004°N	250.69	1.42
Great Valley 08 (Quinto) [2]		15.65	6.57	1.87	121.002°W	37.087°N	278.49	1.25
San Andreas (Creeping Section) [17]		59.88	8.16	2.35	121.309°W	36.695°N	226.17	1.22
UC33brAvg_FM32	System							33.83
Great Valley 09 (Laguna Seca) [3]		12.50	6.46	1.32	120.925°W	37.017°N	237.81	20.67
Great Valley 09 (Laguna Seca) [5]		13.09	6.63	1.25	120.900°W	36.987°N	216.28	1.83
Great Valley 09 (Laguna Seca) [4]		12.53	6.63	1.19	120.919°W	37.010°N	232.20	1.82
Great Valley 09 (Laguna Seca) [6]		14.28	6.61	1.39	120.882°W	36.964°N	203.10	1.62
Ortigalita (North) [0]		20.93	6.52	2.35	121.050°W	37.004°N	250.69	1.23
San Andreas (Creeping Section) [17]		59.88	8.16	2.36	121.309°W	36.695°N	226.17	1.23
Ortigalita (South) [4]		23.80	6.96	2.20	121.038°W	36.934°N	231.92	1.21
Great Valley 08 (Quinto) [2]		15.65	6.56	1.88	121.002°W	37.087°N	278.49	1.18
UC33brAvg_FM31 (opt)	Grid							15.46
PointSourceFinite: -120.828, 37.134		8.08	6.01	1.19	120.828°W	37.134°N	0.00	2.81
PointSourceFinite: -120.828, 37.134		8.08	6.01	1.19	120.828°W	37.134°N	0.00	2.81
PointSourceFinite: -120.828, 37.107		6.46	5.86	1.00	120.828°W	37.107°N	0.00	2.10
PointSourceFinite: -120.828, 37.107		6.46	5.86	1.00	120.828°W	37.107°N	0.00	2.10
UC33brAvg_FM32 (opt)	Grid							15.44
PointSourceFinite: -120.828, 37.134		8.08	6.00	1.19	120.828°W	37.134°N	0.00	2.80
PointSourceFinite: -120.828, 37.134		8.08	6.00	1.19	120.828°W	37.134°N	0.00	2.80
PointSourceFinite: -120.828, 37.107		6.46	5.86	1.00	120.828°W	37.107°N	0.00	2.10
PointSourceFinite: -120.828, 37.107		6.46	5.86	1.00	120.828°W	37.107°N	0.00	2.10

SITE SPECIFIC GROUND MOTION ANALYSIS

APPENDIX E

Site-Specific Ground Motion Analysis (per ASCE 7-16)

Technicon Engineering Services, Inc.	
Project:	Proposed Transitional Kindergarten Center
Job #:	230167
Date:	8/7/2023
Checked by:	S. Alvarez

TECHNICON ENGINEERING SERVICES, INC.

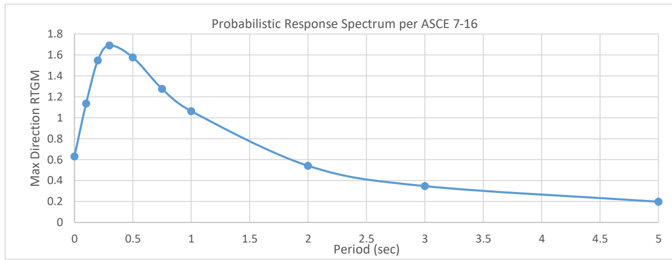
INPUT
OUTPUT
ANALYSIS

S_S	1.178
S_1	0.403
S_{DS}	0.808
PGA_M	0.542
F_a	1.029

https://seismicmaps.org/ ** Values input from OSHPD seismic design map

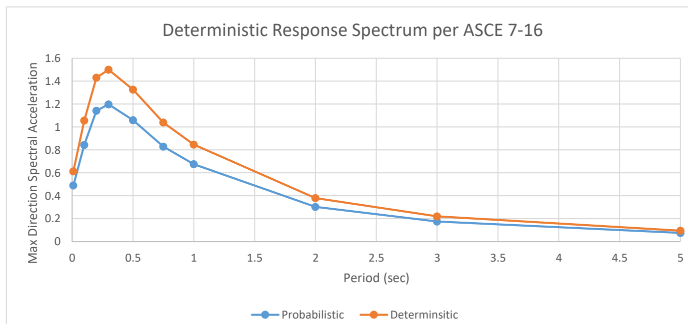
1. Use Unified Hazard Tool "raw data" from Hazard Curve & Risk-Targeted Ground Motion Calculator to get "UHGM & RTGM" values
   a. Plot time vs. adjusted RTGM
2. Input M_w and R_{rup} into NGAW2 Excel worksheet. M_w & R_{rup} can be found with deagg sheet (unified hazard tool) "Mean (over all sources)".
   a. PS_a Median + 5% damping is 84[th] – percentile spectral acceleration

	* from RTGM Calculator			
Period (s)	UHGM (g)	RTGM (g)	Max Dir Scale Factor	Max Dir RTGM (g)
0	0.59	0.573	1.1	0.6303
0.1	1.048	1.033	1.1	1.1363
0.2	1.433	1.407	1.1	1.5477
0.3	1.551	1.504	1.125	1.692
0.5	1.41	1.342	1.175	1.57685
0.75	1.088	1.032	1.2375	1.2771
1	0.869	0.818	1.3	1.0634
2	0.432	0.401	1.35	0.54135
3	0.267	0.248	1.4	0.3472
5	0.143	0.132	1.5	0.198



Scaling Factor: **1.252262867**

	*From NGA-West2 GMPE Worksheet			
Period (s)	84th- percentile spectral acceleration (+1. σ for 5 % damping)	Max Dir Scale Factor	Max Dir Deterministic SA (prob.)	ASCE 7-16 SECTION 21.2.2 (Det.)
0.01	0.445618716	1.1	0.490180587	0.613834947
0.1	0.767230324	1.1	0.843953357	1.05685145
0.2	1.039419582	1.1	1.14336154	1.431789201
0.3	1.064739176	1.125	1.197831573	1.5
0.5	0.90214783	1.175	1.0600237	1.327428318
0.75	0.670488297	1.2375	0.829729268	1.039039152
1	0.52044464	1.3	0.676578032	0.847253546
2	0.224612503	1.35	0.303226879	0.37971976
3	0.125708651	1.4	0.175992111	0.220388386
5	0.05095094	1.5	0.07642641	0.095705955



- ASCE 7-16 Section 21.2.2

If Largest Deterministic Spectral acceleration < 1.5, then scaling by a factor of F_a1.5.

Table 11.4.1 : Site Class D @ $S_S \geq 1.5$ → $F_{a=}$ 1.029

F_a1.5 → $F_{a=}$ 1.5435

- Section 21.3

F_v is taken as 2.4 for $S_1 < 0.2$ or 2.5 for $S_1 > 0.2$

Fv → 2.5

- Section 11.4.6 - Design Response Spectrum

$T_0 = 0.2\left(\frac{S_{D1}}{S_{DS}}\right)$ $T_S = \left(\frac{S_{D1}}{S_{DS}}\right)$

equ. 11.4-2: $S_{M1} = S_1 * F_V$ → 1.51125

equ. 11.4-4: $S_{D1} = \left(\frac{2}{3}\right)S_{M1}$ → 1.008

T_0 → 0.249

T_S → 1.247

S_S	1.178
S_1	0.403
S_{DS} * from seismic design map	0.808
S_{D1} * from section 11.4.6	1.008
T_0	0.249
T_S	1.247

Site-Specific Ground Motion Analysis (per ASCE 7-16) - cont.

Technicon Engineering Services, Inc.

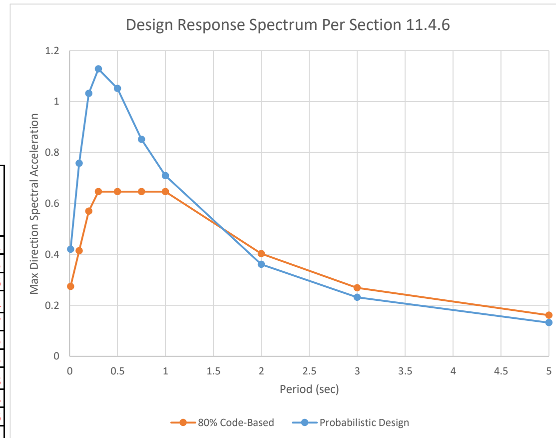
Project:	**Proposed Transitional Kindergarten Center**
Job #:	**230167**
Date:	**8/7/2023**
Checked by:	**S. Alvarez**

INPUT
OUTPUT
ANALYSIS

S_S	**1.178**
S_1	**0.403**
S_{DS}	**0.808**
PGA_M	**0.542**
F_a	**1.029**

Site-Specfic Response Spectra (Section 11.4.6)

Period (T) (sec)	Code-Base -Spectrum Design spectral response acceleration (S_a)	*make sure below applies to period (T sec)	80% Code-Based	S_a=(2/3)(S_{am}) (prob. Design)	(Sec. 21.4) T*S_a
0.01	0.342640119	T less than T_o	0.274112095	0.4202	0.004202
0.1	0.517601191		0.414080953	0.757533333	0.075753333
0.2	0.712002382		0.569601906	1.0318	0.20636
0.3	0.808	$T_0 < T < T_S$; T = S_{DS}	0.6464	1.128	0.3384
0.5	0.808		0.6464	1.051233333	0.525616667
0.75	0.808		0.6464	0.8514	0.63855
1	0.808		0.6464	0.708933333	0.708933333
2	0.50375	T > T_S; S_a = S_{D1}/T	0.403	0.3609	0.7218
3	0.335833333		0.268666667	0.231466667	0.6944
5	0.2015		0.1612	0.132	0.66



- Section 21.4 Design Acceleration Parameters

Max S_a between T= 0.2 - 5 sec (From Design Spectrum (prob.) graph)

$S_{a\,max}$ → 1.128

$S_{DS} = 90\% * S_{a\,max}$ → 1.015

$S_{MS} = 1.5 * S_{DS}$ → 1.523

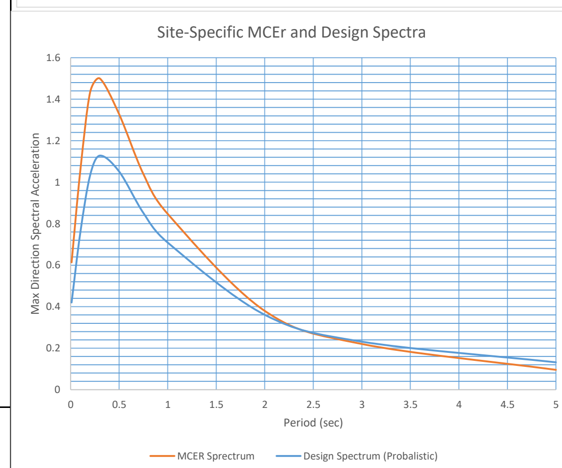
V_{s30} < 365 m/s

Max T * S_a between T=1 sec - 5 sec (From Design Spectrum (prob.) graph)

Max S_a between T=1-5 sec → 0.7218

S_{D1} → 0.722

$S_{M1} = 1.5 * S_{D1}$ S_{M1} → 1.083



- Section 21.5.1 - Probabilistic MCE_G Peak Ground Acceleration

Probablisitc PGA from UHGM @ T=0 sec

$PGA_{prob.}$ → 0.59

- Section 21.5.2 - Determinsitic MCE_G Peak Ground Acceleration

Determinsitic PGA from 84th Spectral Acceleration @ T=0.01 sec

PGA → 0.446

Table **11.8-1**: Site Class D @ PGA = 0.5 → F_{PGA} = 1.113

$0.5F_{PGA}$ = 0.5565

Use greater of PGA or $0.5F_{PGA}$

Therefore; $PGA_{det.}$ → 0.5565

- Section 21.5.3 - Site Specific MCE_G Peak Ground Acceleration

$PGA_{prob.}$ → 0.59

$PGA_{det.}$ → 0.5565

*Take the lesser → PGA_{SSs} 0.5565

PGA CHECK

From Seismic Design Map: PGA_M → 0.542

80 % of PGA_M → 0.434

*Take the greater

Site-Specific PGA → 0.557

Final Seismic Design Values	
S_S	1.178
S_1	0.403
S_{MS}	1.523
S_{DS}	1.015
S_{D1}	0.722
S_{M1}	1.083
F_A	1.029
F_V	2.500
PGA_M	0.557

LIQUEFACTION ANALYSIS AND SEISMICALLY INDUCED SETTLEMENT CALCULATIONS

APPENDIX F

Proposed Transitional Kindergarten Center
DSA File
DSA App No.

Calc by AA   Date 8/10/23
Checked by SAA   Date 8/10/23

Project No: TES 230167
Boring: B-7

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed and Harder (1990), as modified in 1998 NCEER Workshops. Reference Youd et al., 2001
****Includes revisions proposed by Youd (2001)**

The induced cyclic stress ratio (CSR) by a given peak ground acceleration (a_{max}) is:

**CSR = $(t_{av})/s'_{vo} = 0.65\ (s_{vo}/s'_{vo})(a_{max}/g)\ r_d$ MSF

where: **Magnitude Scaling Factor, MSF =31.623*(exp(-0.4605*Mw))
**Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^2}$$

a_{max} = maximum peak acceleration at the ground surface (g's)
g = acceleration of gravity   Mw = Moment Magnitude

The cyclic resistance ratio (CRR) is now read directly from the curve for clean sands under level ground conditions based on the corrected SPT value.
This SPT N value is now corrected for earthquake magnitude, fines, energy, overburden pressure, & sampler factors.
The CSR factors in a magnitude scaling factor and a stress reduction coefficient.

Factor of Safety, F_L is:
F_L = CRR / CSR = Uniform CSR necessary to trigger liquefaction/Equivalent, Uniform, earthquake induced CSR

Hammer Efficiencies - Technicon Drilling Rigs	
CME 45	82.0%
SIMCO	90.0%

Rod Length = **1.22** meters above grounds surface
Hammer Efficiency = **90%** Emean/E60 = Energy Ratio to correct to standard 60% Energy
Ring Sampler Corr. = **0.65**

Surcharge = Any surcharge on top of the ground (psf)
[1]$C_N = 2.2/(1.2+s'_0/P_a)$ Youd and Idriss 2001 Formula (10)

Emean/E60= 1.500   Sur.= 0 psf   Measured Ground Water Depth = 29 feet   Design Ground Water Depth = 5.8 feet   acc. max = 0.557 g   Earthq. Mw = 6.44

Depth to Bottom of Layer (ft.)	Boring Diameter (in)	Soil Type	Layer Thickness (ft.)	Total Overburden Press. σ_{vo} (tsf)	Effect. Overburden Press. σ'_{vo} (tsf) at Measured Ground Water Depth	Effect. Overburden Press. σ'_{vo} (tsf) at Design Ground Water Depth	Midpoint Below Ground Surface (m)	Cn	Total Unit Wt. (pcf) at Measured Ground Water Depth	Total Unit Wt. (pcf) at Design Ground Water Depth	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N	α	β	Stress Reduct. Coeff. rd	MSF	Est. % Fines	C_B	C_R	C_s	$C_BC_RC_s$	Corrected Blow Count $(N_1)_{60}$	$(N_1)_{60cs}$	$CSR_{7.5}$ Induced	$CRR_{7.5}$ (Resist. - c.sand)	Factor of Safety F_L	Will It Liquefy?
4	4	CL	4	0.10	0.10	0.12	0.6	1.70	100	119	2	12	5.000	1.200	0.995	1.63	78.0	1.0	0.75	1.00	0.75	14.9	22.9	0.186	0.256	1.38	ABOVE
5.8	4	CL	1.8	0.25	0.25	0.27	1.5	1.54	100	115	2	12	5.000	1.200	0.989	1.63	78.0	1.0	0.75	1.00	0.75	13.5	21.2	0.199	0.232	1.17	ABOVE
8	4	CL	2.2	0.36	0.36	0.33	2.1	1.44	123	128	2	16	5.000	1.200	0.984	1.63	78.0	1.0	0.80	1.00	0.80	17.9	26.5	0.235	0.326	1.39	NO
13	4	CL	5	0.58	0.58	0.48	3.2	1.27	123	128	1	15	5.000	1.200	0.976	1.63	78.0	1.0	0.85	1.20	1.02	29.1	39.9	0.264	LARGE	LARGE	NO
18	4	SM	5	0.86	0.86	0.63	4.7	1.10	105	124	2	9	3.925	1.093	0.964	1.63	22.0	1.0	0.85	1.00	0.85	8.2	12.9	0.292	0.140	0.48	YES
23	4	SM	5	1.13	1.13	0.79	6.2	0.98	105	124	1	15	3.925	1.093	0.952	1.63	22.0	1.0	0.95	1.20	1.14	25.2	31.5	0.302	LARGE	LARGE	NO
28	4	ML	5	1.42	1.42	0.95	7.8	0.88	130	132	2	30	5.000	1.200	0.941	1.63	52.0	1.0	0.95	1.00	0.95	24.4	34.2	0.312	LARGE	LARGE	NO
33	4	SM	5	1.75	1.67	1.13	9.3	0.80	132	132	1	20	4.289	1.115	0.926	1.63	25.0	1.0	1.00	1.20	1.20	28.9	36.5	0.319	LARGE	LARGE	NO
38	4	SM	5	2.07	1.84	1.30	10.8	0.76	128	128	2	15	4.289	1.115	0.885	1.63	25.0	1.0	1.00	1.00	1.00	11.1	16.7	0.315	0.177	0.56	YES
43	4	SM	5	2.39	2.00	1.46	12.3	0.72	128	128	1	21	4.289	1.115	0.844	1.63	25.0	1.0	1.00	1.20	1.20	27.3	34.7	0.308	LARGE	LARGE	NO
48	4	ML	5	2.72	2.17	1.63	13.9	0.69	130	130	2	24	5.000	1.200	0.804	1.63	51.0	1.0	1.00	1.00	1.00	16.1	24.3	0.298	0.279	0.94	YES
51.5	4	ML	3.5	2.99	2.31	1.77	15.2	0.66	130	130	1	8	5.000	1.200	0.769	1.63	51.0	1.0	1.00	1.20	1.20	9.5	16.4	0.289	0.175	0.60	YES

Proposed Transitional Kindergarten Center
DSA File
DSA App No.

Calc by AA   Date 8/10/23
Checked by SAA   Date 8/10/23

Project No: TES 230167
Boring: B-7

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed and Harder (1990), as modified in 1998 NCEER Workshops. Reference Youd et al., 2001
****Includes revisions proposed by Youd (2001)**

The induced cyclic stress ratio (CSR) by a given peak ground acceleration (a_{max}) is:

**CSR = $(t_{av})/s'_{vo} = 0.65\ (s_{vo}/s'_{vo})(a_{max}/g)\ r_d$ MSF

where: **Magnitude Scaling Factor, MSF =31.623*(exp(-0.4605*Mw))

**Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^{2}}$$

a_{max} = maximum peak acceleration at the ground surface (g's)

g = acceleration of gravity   Mw = Moment Magnitude

The cyclic resistance ratio (CRR) is now read directly from the curve for clean sands under level ground conditions based on the corrected SPT value.
This SPT N value is now corrected for earthquake magnitude, fines, energy, overburden pressure, & sampler factors.
The CSR factors in a magnitude scaling factor and a stress reduction coefficient.

Settlement = e * Layer thickness in inches (Figure 9 1997 NCEER)

Rod Length = **1.22** meters above grounds surface
Hammer Efficiency = **90%** Emean/E60 = Energy Ratio to correct to standard 60% Energy
Ring Sampler Corr. = **0.65**

Surcharge = Any surcharge on top of the ground (psf)   [1]$C_N = (P_a/s'_{vo})^{0.5}$ Youd and Idriss 2001 Formula (9)

Emean/E60= 1.500   Sur.= 0 psf   Measured Ground Water Depth = 29 feet   Design Ground Water Depth = 5.8 feet   acc. max = 0.557 g   Earthq. Mw = 6.44

Depth to Bottom of Layer (ft.)	Boring Diameter (in)	Soil Type	Layer Thickness (ft.)	Total Overburden Press. σ_{vo} (tsf)	Effect. Overburden Press. σ'_{vo} (tsf) at Measured Ground Water Depth	Effect. Overburden Press. σ'_{vo} (tsf) at Design Ground Water Depth	Midpoint Below Ground Surface (ft)	Cn	Total Unit Wt. (pcf) at Measured Ground Water Depth	Total Unit Wt. (pcf) at Design Ground Water Depth	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N	Stress Reduct. Coeff. r_d	MSF	Est. % Fines	$C_BC_RC_s$	Corrected Blow Count $(N_1)_{60}$	ΔN	$(N_1)_{60cs}$	$CSR_{7.5}$ Induced	Factor of Safety F_L	ε (Only if FS<1.3) (%)	Settlement, inches
4	4	CL	4	0.10	0.10	0.12	0.6	1.70	100	119	2	12	0.995	1.63	78.0	0.75	14.9	6.2	21.2	0.186	1.38	-	ABOVE
5.8	4	CL	1.8	0.25	0.25	0.27	1.5	1.54	100	115	2	12	0.989	1.63	78.0	0.75	13.5	6.2	19.8	0.199	1.17	-	ABOVE
8	4	CL	2.2	0.36	0.36	0.33	2.1	1.44	123	128	2	16	0.984	1.63	78.0	0.80	17.9	6.2	24.2	0.235	1.39	-	NONE
13	4	CL	5	0.58	0.58	0.48	3.2	1.27	123	128	1	15	0.976	1.63	78.0	1.02	29.1	6.2	35.3	0.264	LARGE	-	NONE
18	4	SM	5	0.86	0.86	0.63	4.7	1.10	105	124	2	9	0.964	1.63	22.0	0.85	8.2	1.8	10.0	0.292	0.48	0.700	0.4
23	4	SM	5	1.13	1.13	0.79	6.2	0.98	105	124	1	15	0.952	1.63	22.0	1.14	25.2	1.8	27.0	0.302	LARGE	-	NONE
28	4	ML	5	1.42	1.42	0.95	7.8	0.88	130	132	2	30	0.941	1.63	52.0	0.95	24.4	4.2	28.5	0.312	LARGE	-	NONE
33	4	SM	5	1.75	1.67	1.13	9.3	0.80	132	132	1	20	0.926	1.63	25.0	1.20	28.9	2.0	30.9	0.319	LARGE	-	NONE
38	4	SM	5	2.07	1.84	1.30	10.8	0.76	128	128	2	15	0.885	1.63	25.0	1.00	11.1	2.0	13.1	0.315	0.56	0.530	0.3
43	4	SM	5	2.39	2.00	1.46	12.3	0.72	128	128	1	21	0.844	1.63	25.0	1.20	27.3	2.0	29.3	0.308	LARGE	-	NONE
48	4	ML	5	2.72	2.17	1.63	13.9	0.69	130	130	2	24	0.804	1.63	51.0	1.00	16.1	4.1	20.2	0.298	0.94	0.300	0.2
51.5	4	ML	3.5	2.99	2.31	1.77	15.2	0.66	130	130	1	8	0.769	1.63	51.0	1.20	9.5	4.1	13.6	0.289	0.60	0.500	0.2

Total Settlement 1.1
May be off by 0.1 inches due to rounding

Proposed Transitional Kindergarten Center
DSA File
DSA App No.

Calc by AA Date 8/10/23
Checked by SAA Date 8/10/23

Project No: TES 230167
Boring: B-7

Dynamic Dry Sand Settlement

g_{cyc} = [(tav)/s'vo]/Gmax = 0.65 (a_{max} /g) s_o r_d / G_{max}

Where: G_{max} = 20,000 $[(N_1)_{60,cs}]^{0.33}[s'_m]^{0.5}$

Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^2}$$

a_{max} = maximum peak acceleration at the ground surface (g's)

g = acceleration of gravity

Notes:
1) Figure 9.51, Geotechnical Earthquake Engineering, Kramer
2) Figure 9.52b, Geotechnical Earthquake Engineering, Kramer
3) Table 9-4, Geotechnical Earthquake Engineering, Kramer

Sur.= 0 psf   Measured Ground Water Depth = 29 feet   acc. max = 0.557 g   Earthq. Mw = 6.44

Elev. Base of Layer (ft)	Elev. Top of Layer (ft)	Soil Type	Layer Thickness (ft)	Depth to Midpoint (m)	Total Unit Wt. (pcf)	Total Overburden Pressure s_{vo} (psf)	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N (SPT)	Stress Reduct. Coeff. rd	$(N_1)_{60cs}$	g_{eff} (G_{eff}/G_{max})	Cyclic Overburden Pressure s_{vo} (tsf)	(1)Cyclic Shear Strain, g_{eff}	Cyclic Shear Strain, g_{eff} (%)	(2)Volumetric Strain, $e_{c,M=7.5}$ (%)	(3)Volumetric Strain Ratio ($e_{c,M}/e_{c,M=7.5}$)	Volumetric Strain, $e_{c,M}$ (%)	Multi Direction Vol. Strain (%)	Settlement (in)
4	4	CL	4	0.6	100	200.0	2	12	0.995	22.9	1.11E-04	0.07	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	0.0000
5.8	4	CL	1.8	1.5	100	490.0	2	12	0.989	21.2	1.77E-04	0.16	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	0.0000
8	4	CL	2.2	2.1	123	715.3	2	16	0.984	26.5	1.98E-04	0.23	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	0.0000
13	4	CL	5	3.2	123	1158.1	1	15	0.976	39.9	2.18E-04	0.38	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	0.0000
18	**4**	**SM**	**5**	**4.7**	**105**	**1728.1**	**2**	**9**	**0.964**	**12.9**	**3.84E-04**	**0.56**	**3.00E-03**	**3.00E-01**	**5.00E-01**	**0.7485**	**0.3742**	**0.7485**	**0.4491**
23	**4**	**SM**	**5**	**6.2**	**105**	**2253.1**	**1**	**15**	**0.952**	**31.5**	**3.21E-04**	**0.73**	**1.40E-03**	**1.40E-01**	**8.00E-02**	**0.7485**	**0.0599**	**0.1198**	**0.0719**
28	**4**	**ML**	**5**	**7.8**	**130**	**2840.6**	**2**	**30**	**0.941**	**34.2**	**3.47E-04**	**0.92**	**1.00E-03**	**1.00E-01**	**4.00E-02**	**0.7485**	**0.0299**	**0.0599**	**0.0359**
33	4	SM	5	9.3	132	3495.6	1	20	0.926	36.5	3.70E-04	1.14	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	BELOW
38	4	SM	5	10.8	128	4145.6	2	15	0.885	16.7	5.01E-04	1.35	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	BELOW
43	4	SM	5	12.3	128	4785.6	1	21	0.844	34.7	4.02E-04	1.56	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	BELOW
48	4	ML	5	13.9	130	5430.6	2	24	0.804	24.3	4.59E-04	1.76	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	BELOW
51.5	4	ML	3.5	15.2	130	5983.1	1	8	0.769	16.4	5.26E-04	1.94	0.00E+00	0.00E+00	0.00E+00	0.7485	0.0000	0.0000	BELOW
																		Total Settlement	0.11

Appendix 6

Los Banos Unified School District

Early Learning Center Project

Documentation for Public Resources Code Section 21151.8 and CEQA Guidelines Section 15186 Findings for Hazardous Air Emissions and Hazardous Substances or Waste

Memorandum on Facilities Emitting Hazardous Air Emissions or Handling Hazardous Substances or Waste within One-Fourth Mile of the Los Banos Unified School District Early Learning Center Project

January 24, 2024

Introduction

Public Resources Code Section 21151.8 and CEQA Guidelines Section 15186 require that an EIR or Negative Declaration shall not be certified or approved for a school construction project unless the District has consulted with the Air Pollution Control District and county health department to determine whether there are any facilities within one-fourth mile of the site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous substances or waste. If there are such facilities identified, the District must find that the facilities will not pose a potential endangerment of health to students or employees at the site. The San Joaquin Valley Air Pollution Control District (Air District) was contacted to identify potential sources of hazardous air emissions within one-fourth mile of the project site. The information received from the Air District is attached to this memo. The Merced County Environmental Health Division, which is the Certified Unified Program Agency (CUPA) that administers hazardous materials regulatory functions in Merced County, was contacted regarding potential facilities that handle hazardous substances or waste within one-fourth mile of the project site.

Identification and Evaluation of Facilities

Air District

The facilities identified by the Air District as potentially generating hazardous air emissions within one-fourth mile of the project site are listed below in Table 1.

Table 1

Facilities Identified by Air District Being within One-Fourth Mile From Project Site

Facility ID	Facility Name	Facility Description	Facility Address	Measured Distance (Google Earth)
N1354	Manuel A Avila, Dba- Central Concrete	Ready-Mixed Concrete	402 N Mercy Springs Rd	1,420 feet (0.27 mile
N4107	City of Los Banos	Water Supply	1300 East B St	1,580 feet (0.30 mile)
N4108	City of Los Banos	Water Supply	1630 San Luis St (Well #7)	1,360 feet (0.26 mile)

As shown in the right column in Table 1, none of the three facilities listed in Table 1 is actually within one-fourth mile of the Early Learning Center Project site. Thus, technically, they are not subject to the one-fourth mile code requirements. However, each will be addressed, nonetheless.

The measured distance using the Google Earth measuring tool for the Ready Mix Concrete operation is 1,420 feet (0.27 mile) to the southwest of the site. This operation has a permit with conditions requiring the following:

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]

Based on the actual distance to the school site and the above permit conditions, the facility would not result in an endangerment of health to persons who would attend or be employed at the proposed school.

The two City of Los Banos sites are water well sites that each have backup diesel generators. The 1300 East B Street site is located 1,580 feet (0.30 mile) west of the project site. The 1630 San Luis Street site is located 1,360 feet (0.26 mile)south of the project site. These diesel generators would only be operated as an emergency backup and are subject to numerous conditions (see attached Air District information) that would ensure the generators would not result in an endangerment of health to persons who would attend or be employed at the proposed school.

Merced County Environmental Health Division

The project site is surrounded on all sides by single family residences and schools. There is only one facility within one-fourth mile that could potentially handle hazardous substances. This is the Los Banos Fitness and Racquet Club, located at 1520 Racquet Club Drive, the building and pool areas of which are located at least 1,000 feet (0.19 mile) southwest of the project site. The facility is located adjacent to a residential neighborhood and would not be expected to handle the type or quantity of hazardous materials that would pose a risk to a site 1,000 feet away with an intervening residential neighborhood. However, a public records request has been submitted to the Merced County Environmental Health Division to obtain any hazardous materials records for the site (see attached). The request was submitted on January 18, 2024, and a response is pending as of the date of this memo. The 30-day Mitigated Negative Declaration (MND) review period will run from January 26, 2024, to February 26, 2024, and the Los Banos Unified School District Governing Board is scheduled to consider adoption of the MND at its meeting on March 14, 2024. The response from the Merced County Environmental Health Division is expected within approximately 10 days and any information received will be reflected in the Board materials prior to their consideration of this matter.

December 20, 2023

Scott Odell
Odell Planning & Research, Inc
49346 Road 426, Suite 2,
Oakhurst, CA, 93644

Re: Public Record Request Release for Transitional Kindergarten Center
Public Records Request Number: 23-852

Dear Mr. Odell:

The San Joaquin Valley Air Pollution Control District (District) has received a public records request to identify any facilities and/or traffic corridors within a ¼ mile of the proposed Transitional Kindergarten Center (Project) that are expected to emit hazardous emissions, as required per public resources code 21151.8. The Project is located at the southwest corner of Place Road and B Street in the City of Los Banos.

The District offers the following comments regarding the Project:

1) **Facilities Subject to District Permitting Requirements**

There are three facilities subject to District permit requirements that are located within ¼ miles of the Project, identified in the table below. Enclosed are the facilities' permits to operate.

Facility ID	Facility Name	Facility Description	Facility Address	Latitude, Longitude
N1354	MANUEL A AVILA, DBA - CENTRAL CONCRETE	READY-MIXED CONCRETE	402 N MERCY SPRINGS RD	37.06376, -120.833902
N4107	CITY OF LOS BANOS	WATER SUPPLY	1300 EAST B ST	37.067167, -120.834466
N4108	CITY OF LOS BANOS	WATER SUPPLY	1630 SAN LUIS ST (Well #7)	37.062055, -120.829349

2) **Freeway, High Volume Roadways, & Railways**

The District recommends the project proponent contact Caltrans and/or other local transportation agencies to identify freeways and busy traffic corridors as defined in the Health and Safety Code.

3) **Other Non-Permitted Facilities**

There are currently no agricultural and/or industrial-related facilities located within a ¼ mile of the Project.

If you have any questions or require further information, please contact Patrick Chimienti by e-mail at patrick.chimienti@valleyair.org or by phone at (559) 230-6139.

Sincerely,

Seth Lane
Program Manager - Technical Services Department

Facility # N-1354
MANUEL A AVILA, DBA - CENTRAL CONCRETE
402 N MERCEY SPRINGS RD
PO BOX 2546
LOS BANOS, CA 93635

Notice of Permit Issuance

The enclosed permit unit requirements authorize the operation of the equipment as described. These permit unit requirements supersede any and all previous permits for the specified equipment.* Please insert these documents into the Facility Permit to Operate, and post copies on or near the equipment as required by District Rule 2010.

Please contact any of our Small Business Assistance (SBA) staff at the numbers below if you have any questions:

Modesto:	(209) 557-6446
Fresno:	(559) 230-5888
Bakersfield:	(661) 392-5665

*Failure to comply with the permit unit requirements may result in enforcement action.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

Permit to Operate

FACILITY: N-1354 **EXPIRATION DATE:** 09/30/2027

LEGAL OWNER OR OPERATOR:	MANUEL A AVILA, DBA - CENTRAL CONCRETE
MAILING ADDRESS:	402 N MERCEY SPRINGS RD PO BOX 2546 LOS BANOS, CA 93635
FACILITY LOCATION:	402 N MERCEY SPRINGS RD LOS BANOS, CA 93635
FACILITY DESCRIPTION:	READY-MIXED CONCRETE

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Brian Clements
Director of Permit Services

Sep 13 2022 7:19AM -- AGUAYOJ

PERMIT UNIT: N-1354-1-0 **EXPIRATION DATE:** 09/30/2027

EQUIPMENT DESCRIPTION:
SUNMASTER BATCH AND PRE-MIX PLANT

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]

Permit to Operate

FACILITY: N-4107 **EXPIRATION DATE:** 01/31/2024

LEGAL OWNER OR OPERATOR:	CITY OF LOS BANOS
MAILING ADDRESS:	411 MADISON AVE LOS BANOS, CA 93635
FACILITY LOCATION:	1300 EAST "B" ST LOS BANOS, CA 93635
FACILITY DESCRIPTION:	WATER SUPPLY

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Arnaud Marjollet
Director of Permit Services

Jan 16 2019 3:54PM -- MCDONOUD

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-4107-1-0 **EXPIRATION DATE:** 01/31/2024

EQUIPMENT DESCRIPTION:
190 BHP WAUKESHA/SCANIA MODEL F475DWUF DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A DRINKING WATER SYSTEM (WELL PUMP #5)

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. This engine shall be used exclusively to operate a drinking water system. [CH&SC 41701.6]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 2 or 40% opacity. [CH&SC 41701.6]
5. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
6. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
7. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
8. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed any of the following limits: 30 minutes per week, 2 hours per month, or 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115 and CH&SC 41701.6]
9. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
10. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
11. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
12. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. The permittee shall maintain monthly records of the type of fuel purchased, the amount of fuel purchased, date when the fuel was purchased, signature of the permittee who received the fuel, and signature of the fuel supplier indicating that the fuel was delivered. [17 CCR 93115]
14. If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]
15. If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]
16. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Permit to Operate

FACILITY: N-4108 **EXPIRATION DATE:** 01/31/2024

LEGAL OWNER OR OPERATOR: CITY OF LOS BANOS
MAILING ADDRESS: 411 MADISON AVE
LOS BANOS, CA 93635

FACILITY LOCATION: 1630 SAN LUIS ST (WELL #7)
LOS BANOS, CA 93635

FACILITY DESCRIPTION: WATER SUPPLY

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Samir Sheikh
Executive Director / APCO

Arnaud Marjollet
Director of Permit Services

Jan 16 2019 3:08PM -- MCDONOUD

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-4108-1-0 **EXPIRATION DATE:** 01/31/2024

EQUIPMENT DESCRIPTION:
155 BHP SCANIA/WAUKESHA CVAB MODEL A8A06/F47604 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A DRINKING WATER SYSTEM (WELL PUMP #7)

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. When this engine is operated under non-emergency circumstances (for example, engine testing and/or maintenance), no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. This engine shall be used exclusively to operate a drinking water system. [CH&SC 41701.6]
5. When this engine is operated under emergency circumstances, no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 2 or 40% opacity. [CH&SC 41701.6]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
7. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
8. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
9. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed any of the following limits: 30 minutes per week, 2 hours per month, or 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115 and CH&SC 41701.6]
10. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
11. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
12. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
14. The permittee shall maintain monthly records of the type of fuel purchased, the amount of fuel purchased, date when the fuel was purchased, signature of the permittee who received the fuel, and signature of the fuel supplier indicating that the fuel was delivered. [17 CCR 93115]
15. If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]
16. If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]
17. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

MERCED COUNTY

COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT
DIVISION OF ENVIRONMENTAL HEALTH

California Public Records Act Request Form

Date of Request: January 18, 2024

Requesting Party

Name: Scott Odell, Odell Planning & Research, Inc.

Address: 49346 Road 426, Suite 2

City/State/Zip: Oakhurst, CA 93644

Phone Number: 559-472-7167 Fax: N/A E-mail: scott@odellplanning.com

Information Requested

Name (Facility): Los Banos Fitness & Racquet Club

Address: 1520 Racquet Club Drive City: Los Banos, CA 93635

Assessor's Parcel Number: 428-030-021

Specific Information Requested:

Hazardous materials permit information for the facility, such as a Hazardous Materials Business Plan or other information from which we can identify the current use or storage of hazardous materials at the site.

-- *Environmental Health Use Only* --

Date and Time to Review Record: ______________________________

Date Sent to County Counsel: ______________

Date County Counsel Approval to Release: ______________

Date Environmental Health Sent Written Response to Requesting Party: ______________

File # __________

A total of__________pages of maps/chemical storage/confidential/trade secret information were removed from this file.

Final Disposition: ____

____

____

By: ______________________

O:\Admin\Public Record Act Req Forms & Records\CA Public Records Act Request Form 02242022.pdf

Appendix 7

Los Banos Unified School District

Early Learning Center Project

Noise & Groundborne Vibration Impact Analysis

NOISE & GROUNDBORNE VIBRATION IMPACT ANALYSIS

FOR

LOS BANOS UNIFIED SCHOOL DISTRICT TRANSITIONAL KINDERGARTEN PROJECT

LOS BANOS, CA

JANUARY 2024

PREPARED FOR:

ODELL PLANNING & RESEARCH, INC.
49346 ROAD 426, SUITE 2
OAKHURST, CA 93644

PREPARED BY:

AMBIENT
AIR QUALITY & NOISE CONSULTING

75 HIGUERA STREET, SUITE 105
SAN LUIS OBISPO, CA 93401

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APPENDICES

LIST OF COMMON TERMS AND ACRONYMS

agl	Above Ground Level
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Los Banos
CNEL	Community Noise Equivalent Level
dB	Decibels
dBA	A-Weighted Decibels
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
in/sec	Inches per Second
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Sound Level
ppv	Peak Particle Velocity

INTRODUCTION

This report discusses the existing setting, identifies potential noise and groundborne vibration impacts associated with implementation of the proposed Los Banos Transitional Kindergarten Project (project). Project impacts are evaluated relative to applicable thresholds of significance. This report also provides a summary of existing conditions in the project area as well as the applicable regulatory framework pertaining to noise and groundborne vibration.

PROPOSED PROJECT SUMMARY

The proposed project site is located on an approximately 28.3 acre site (Assessor's Parcel Numbers [APNs] (428-030-022) and located in the City of Los Banos within Merced County California. The site consists of vacant undeveloped land, located to the south of the project site is the Los Banos Junior High School campus. The area surrounding the project site consists of existing residential homes. The proposed Los Banos District Transitional Kindergarten is approximately 4.58 acres in size.

The project includes the construction and operation of a transitional kindergarten (TK) with 19 classrooms to serve 300 students for the Los Banos Unified School District (LBUSD). Fifteen of these classrooms will be used for TK students and four will be used for Pre-K students. The proposed classrooms would be located along the southern project boundary. The project would include several outdoor play areas, 2 shared workout rooms, onsite drainage ditches and an onsite trash enclosure. Additionally, the project includes landscaping features, and new concrete paved areas. The project's vicinity is depicted in Figure 1. The project's location is depicted in Figure 2. The project's site plan is depicted in Figure 3.

The proposed project would also include the construction of a staff parking lot including a bus drop-off/loading area and a parent/visitor parking lot with a drop-off area. The entrance to the parent/visitor lot will be accessible from East B Street, parent/visitor traffic must exit on Place Road, limited to right turn (southbound) movements.

If approved, project construction would begin summer of 2024 and anticipated to be completed and operational by fall 2025.

EXISTING SETTING

CONCEPTS AND TERMINOLOGY

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency.

Amplitude

Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. 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 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3-dB change in amplitude as the minimum audible difference perceptible to the average person.

Frequency

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (U.S. EPA 1971). Common community noise sources and associated noise levels, in dBA, are depicted in Figure 4.

Addition of Decibels

Because decibels are logarithmic units, sound levels cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces a sound level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation & Attenuation

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, depending on ground surface characteristics. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation for soft surfaces results in an overall attenuation rate of 4.5 decibels per doubling of distance from the source.

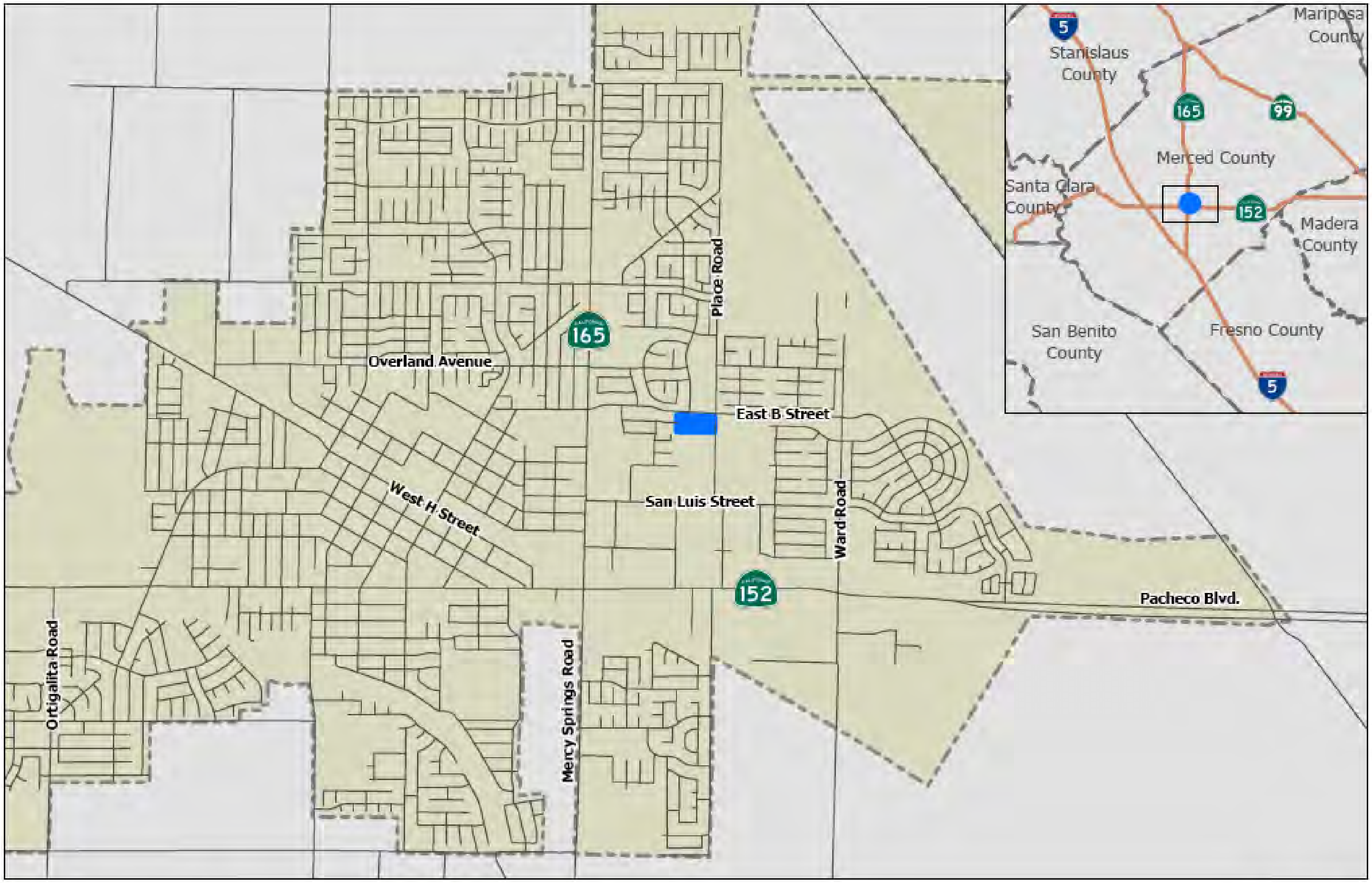
Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in a minimum of 5 dB of noise reduction. Taller barriers provide increased noise reduction.

Figure 1. Project Vicinity



Project Location **Figure 1**

Transitional Kindergarten Center Project
Los Banos Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Project Site
Los Banos City Limits

0 1,000 2,000 4,000 Feet

N

Figure 2. Project Location

Project Site **Figure 2**

Transitional Kindergarten Center Project
Los Banos Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Project Site

1" = 500'

N

Figure 3. Site Plan

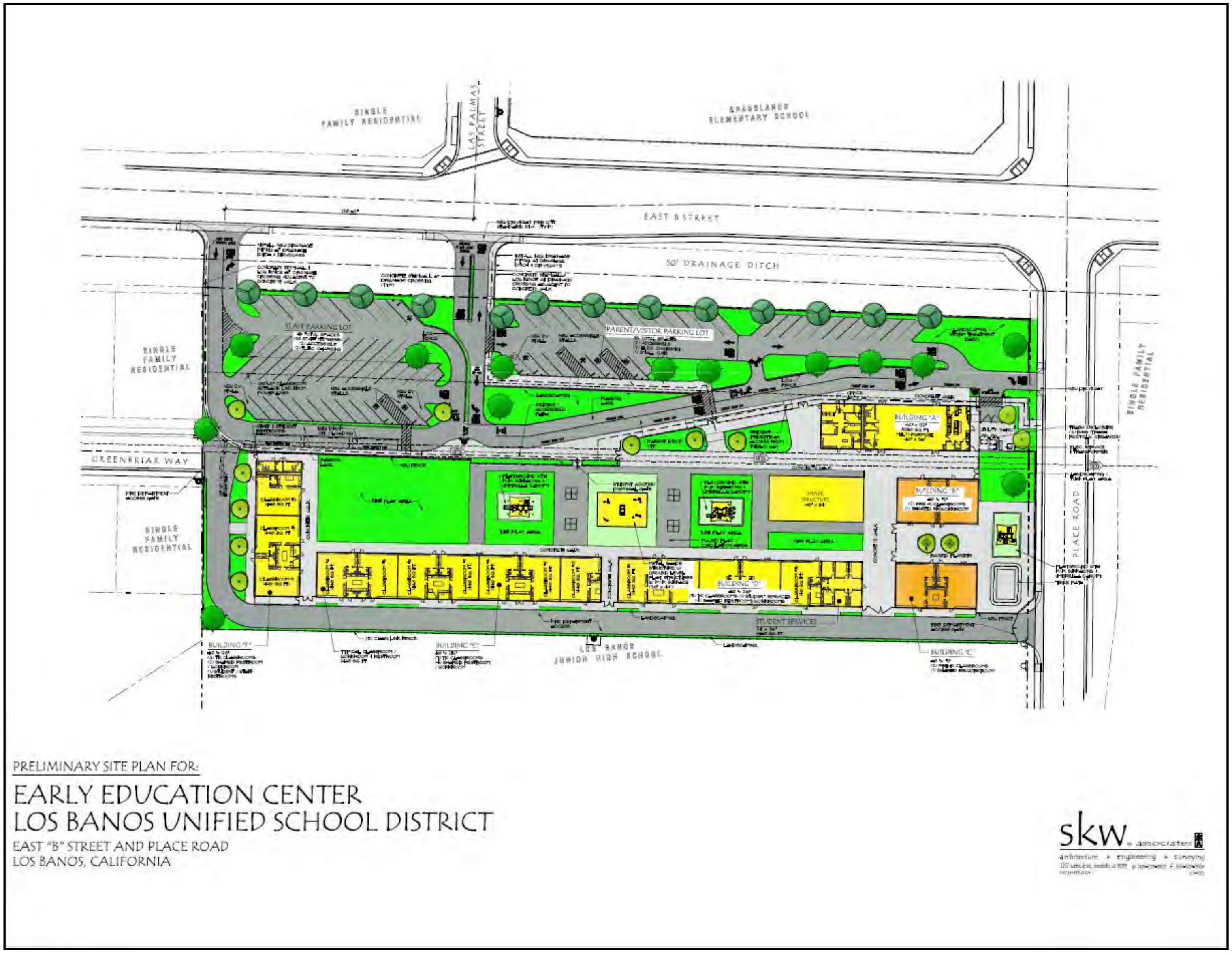
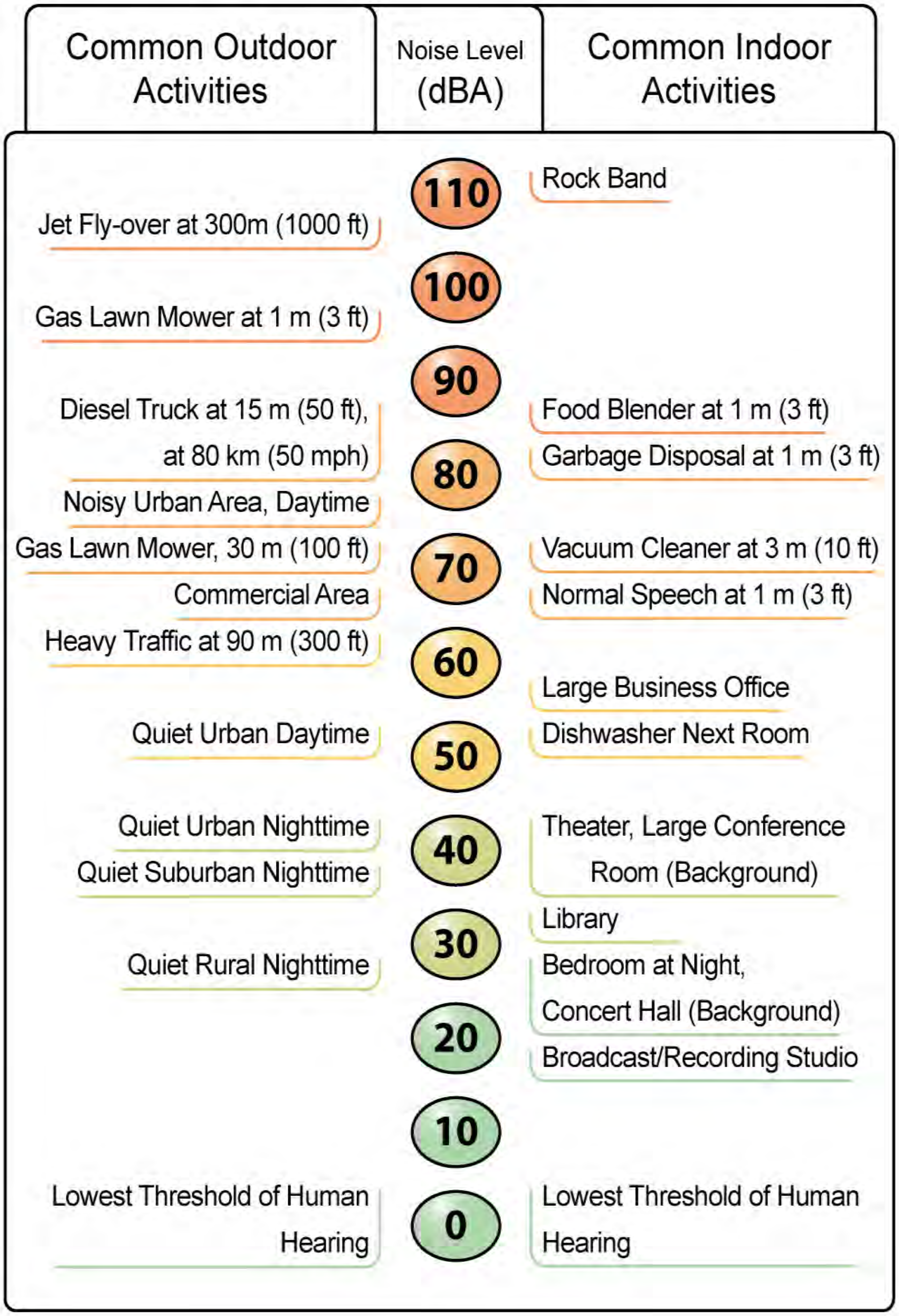


Figure 4. Common Community Noise Sources & Noise Level



Source: Caltrans 2022

Noise reductions afforded by building construction can vary depending on construction materials and techniques. Standard construction practices typically provide approximately 15 dBA exterior-to-interior noise reductions for building facades, with windows open, and approximately 25-30 dBA, with windows closed. With compliance with current Title 24 energy efficiency standards, which require increased building insulation and inclusion of an interior air ventilation system to allow windows on noise-impacted façades to remain closed, exterior-to-interior noise reductions typically average approximately 25 dBA. The absorptive characteristics of interior rooms, such as carpeted floors, draperies, and furniture, can result in further reductions in interior noise.

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. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound-pressure level in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies, which is referred to as the "A-weighted" sound level (expressed in units of dBA). The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with environmental noise.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are typically used. For the evaluation of environmental noise, the most commonly used descriptors are equivalent sound level (L_{eq}), day-night average level (L_{dn}), and community noise equivalent level (CNEL). The energy-equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise. The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10-dBA "penalty" added for nighttime noise (10 p.m. to 7 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the community equivalent noise level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7 p.m. to 10 p.m.) Common noise level descriptors are summarized in Table 1.

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. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Table 1. Common Acoustical Descriptors

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Statistical Descriptor (L_X)	The noise level exceeded a percentage of time during a measurement period. For instance, L_{50} is a statistical descriptor of the noise level exceeded 50% of the time during the measurement period. Over a one-hour period the L_{50} noise level is roughly equivalent to the L_{eq} noise level. The L_0 is roughly equivalent to the L_{max} descriptor.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The DNL was first recommended by the U.S. EPA in 1974 as a "simple, uniform and appropriate way" of measuring long term environmental noise. DNL takes into account both the frequency of occurrence and duration of all noise events during a 24-hour period with a 10 dBA "penalty" for noise events that occur between the more noise-sensitive hours of 10 p.m. and 7 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Level (CNEL)	The CNEL is similar to the Ldn described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated Ldn.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

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

Effects of Noise on Human Activities

The extent to which environmental noise is deemed to result in increased levels of annoyance, activity interference, and sleep disruption varies greatly from individual to individual depending on various factors, including the loudness or suddenness of the noise, the information value of the noise (e.g., aircraft overflights, child crying, fire alarm), and an individual's sleep state and sleep habits. Over time, adaptation to noise events and increased levels of noise may also occur. In terms of land use compatibility, environmental noise is often evaluated in terms of the potential for noise events to result in increased levels of annoyance, sleep disruption, or interference with speech communication, activities, and learning. Noise-related effects on human activities are discussed in more detail, as follows:

Speech Communication

For most noise-sensitive land uses, an interior noise level of 45 dB L_{eq} is typically identified for the protection of speech communication in order to provide for 100-percent intelligibility of speech sounds. For outdoor voice communication, an exterior noise level of 60 dBA L_{eq} allows normal conversation at distances up to 2 meters with 95 percent sentence intelligibility (U.S. EPA 1974.) Based on this information, speech interference begins to become a problem when steady noise levels reach approximately 60 to 65 dBA. Within interior noise environments, an average-hourly background noise level of 45 dBA L_{eq} is typically recommended for noise-sensitive land uses, such as educational facilities (Caltrans 2002).

Annoyance & Sleep Disruption

With regard to potential increases in annoyance, activity interference, and sleep disruption, land use compatibility determinations are typically based on the use of the cumulative noise exposure metrics (i.e., CNEL or L_{dn}). Perhaps the most comprehensive and widely accepted evaluation of the relationship between noise exposure and the extent of annoyance was one originally developed by Theodore J. Schultz in 1978. In 1978 the research findings of Theodore J. Schultz provided support for L_{dn} as the descriptor for environmental noise. Research conducted by Schultz identified a correlation between the cumulative noise exposure metric and individuals who were highly annoyed by transportation noise. The Schultz curve, expressing this correlation, became a basis for noise standards. When expressed graphically, this relationship is typically referred to as the Schultz curve. The Schultz curve indicates that approximately 13 percent of the population is highly annoyed at a noise level of 65 dBA L_{dn}. It also indicates that the percentage of people describing themselves as being highly annoyed accelerates smoothly between 55 and 70 dBA L_{dn}. A noise level of 65 dBA L_{dn} is a commonly referenced dividing point between lower and higher rates of people describing themselves as being highly annoyed (Caltrans 2002).

The Schultz curve and associated research became the basis for many of the noise criteria subsequently established for federal, state, and local entities. Most federal and state of California regulations and policies related to transportation noise sources establish a noise level of 65 dBA CNEL/L_{dn} as the basic limit of acceptable noise exposure for residential and other noise-sensitive land uses. For instance, with respect to aircraft noise, both the Federal Aviation Administration (FAA) and the State of California have identified a noise level of 65 dBA L_{dn} as the dividing point between normally compatible and normally incompatible residential land use generally applied for determination of land use compatibility. For noise-sensitive land uses exposed to aircraft noise, noise levels in excess of 65 dBA CNEL/L_{dn} are typically considered to result in a potentially significant increase in levels of annoyance (Caltrans 2002).

Allowing for an average exterior-to-interior noise reduction of 25 dB, which is typical for newer building construction with windows closed, an exterior noise level of 70 dBA CNEL/L_{dn} would equate to an interior noise level of 45 dBA CNEL/L_{dn}. An interior noise level of 45 dB CNEL/L_{dn} is generally considered sufficient to protect against activity interference at most noise-sensitive land uses, including residential dwellings, and would also be sufficient to protect against sleep interference (U.S. EPA 1974.) Within California, the California Building Code establishes a noise level of 45 dBA CNEL as the maximum acceptable interior noise level for residential uses (other than detached single-family dwellings). Use of the 45 dBA CNEL threshold is further supported by recommendations provided in the State of California Office of Planning and Research's *General Plan Guidelines*, which recommend an interior noise level of 45 dB CNEL/L_{dn} as the maximum allowable interior noise level sufficient to permit "normal residential activity."

The cumulative noise exposure metric is currently the only noise metric for which there is a substantial body of research data and regulatory guidance defining the relationship between noise exposure, people's reactions, and land use compatibility. However, when evaluating environmental noise impacts involving intermittent noise events, such as aircraft overflights and train passbys, the use of cumulative noise metrics may not provide a thorough understanding of the resultant impact. The general public often finds it difficult to understand the relationship between intermittent noise events and cumulative noise exposure metrics. In such instances, supplemental use of other noise metrics, such as the L_{eq} or maximum sound level (L_{max}) descriptor, may be helpful as a means of increasing public understanding regarding the relationship between these metrics and the extent of the resultant noise impact (Caltrans 2002).

AFFECTED ENVIRONMENT

NOISE-SENSITIVE LAND USES

Noise-sensitive receptors in the project area consist predominantly of residential dwellings located adjacent to the proposed project's western property line. The nearest residential-use property line is located approximately 5 feet west of the project site boundary. Nearby noise-sensitive land uses are depicted in Figure 5.

Figure 5. Nearby Sensitive Receptors & Noise-Measurement Locations

1. All Locations are approximate. Not to Scale

AMBIENT NOISE ENVIRONMENT

The noise environment in the proposed project area is defined primarily by vehicular traffic on the nearby local roadways of Place Road and East B Street. Additionally, the local noise environment includes school bells. To document existing ambient noise levels at the project site, short-term ambient noise measurements were conducted on December 7th, 2023. Noise measurements were conducted using a Soft dB Piccolo 2 sound-level meter positioned at a height of approximately 5 feet above ground level. Noise measurement equipment was calibrated prior to and upon completion of the noise measurement survey. Short-term measured ambient noise levels are summarized in Table 2. Noise-measurement locations are depicted in Figure 5.

Based on the noise measurements conducted, daytime ambient noise levels in the vicinity of nearby noise-sensitive land uses range from approximately 46 to 65 dBA L_{eq}. Ambient noise levels were influenced primarily by vehicle traffic on area roadways.

Table 2. Summary of Short-term Measured Ambient Noise Levels - Measurement Locations

Location	Location Description	Monitoring Period	Noise Levels	
			L_{eq} dBA	L_{max} dBA
ST1	Place Road approx. 350 feet south of East B Street	11:28 – 11:38	62.2	81.6
ST2	Corner of East B Street and Place Road	12:52 – 12:03	65.1	80.3
ST3	End of Greenbriar Way, next to project site boundary	12:16 – 12:26	52	66.7
ST4	Cul-de-sac of Banbury Court	12:30 – 12:40	45.8	63.3

Ambient noise measurements were conducted using a Soft dB Piccolo 2, sound-level meter placed at a height of approximately 5 feet above ground level. Equipment was calibrated prior to and upon completion of the noise measurements. Noise measurements were conducted on December 7, 2023.
Refer to Figure 5 for noise measurement locations.

REGULATORY FRAMEWORK

NOISE

City of Los Banos Municipal Code

The City of Los Banos Municipal Code Title 9 – Planning and Zoning, Chapter 3.27 – Noise Control defines exterior noise standards for daytime and nighttime hours shown in Table 3. Additionally, the municipal code establishes acceptable periods for construction. The City's municipal code identifies specifically prohibited noise sources as well as exemptions. Noise source exemptions include the following (Los Banos 2023):

(a) Activities conducted in public parks, public playgrounds, and public or private school grounds, including, but not limited to, school athletic, school entertainment, or civic events;

(b) Any mechanical device, apparatus, or equipment used, related to, or connected with emergency activities or emergency work or the maintenance of public utilities or public roads and streets;

(c) Noise sources associated with construction provided such activities do not take place before 7:00 a.m. or after 9:00 p.m. on any day, except Saturday or Sunday, or before 8:00 a.m. or after 5:00 p.m. on Saturday or Sunday;

(d) Noise sources associated with the maintenance of residential property provided such activities take place between the hours of 7:00 a.m. and 9:00 p.m. on any day, except Saturday or Sunday, or between the hours of 8:00 a.m. and 9:00 p.m. on Saturday or Sunday;

(e) Noise sources associated with the collection of waste or garbage from property devoted to commercial or industrial uses;

(f) Noise sources associated with existing food processing, agricultural packing, or dairy or other industrial or commercial operations provided the noise levels generated by such operations do not exceed current levels. Any new construction or expansion (but not the repair or replacement of existing equipment) of such operations shall not exceed the exterior noise level standards set forth in Section 9-3.2704 of this article; and

(g) Any activity to the extent regulation thereof has been preempted by State or Federal laws. (§ 3, Ord. 770, eff. December 4, 1987)

It is important to note that the City's noise standards are based on the statistical noise descriptor. As noted earlier in this report, the statistical noise descriptor reflects the noise level exceeded a percentage of time during a measurement period. For instance, L_{50} is a statistical descriptor of the noise level exceeded 50% of the time during the measurement period. Over a one-hour period the L_{50} noise level would be reflective of noise levels exceeded for a period of 30 minutes in a one-hour period. The L_{50} is roughly equivalent to the L_{eq} noise level. For instantaneous noise sources, the L_0 is generally considered equivalent to the L_{max} noise level. The City's noise standard are presented in Table 3.

Table 3. Exterior Noise Standards

Category	Cumulative Number of Minutes in Any One-Hour Time Period/Descriptor	Residential/Noise Sensitive[1]		Commercial/Industrial Any time
		Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)	
1	30 (L_{50})	55 dBA	45 dBA	70 dBA
2	15 (L_{25})	60 dBA	50 dBA	75 dBA
3	5 (L_{08})	65 dBA	55 dBA	80 dBA
4	1 (L_{02})	70 dBA	60 dBA	85 dBA
5	0 (L_0)	75 dBA	65 dBA	90 dBA

1. Includes schools, hospitals churches, and public libraries.
2. Standards shall be reduced by five dB for pure tone noises.
3. In the event existing ambient noise levels exceed standards the applicable standards shall; be adjusted so as to equal the ambient noise level.
Source: City of Los Banos 2023

City of Los Banos General Plan

The noise element contained within the Los Banos general plan aims to identify noise sources that exist within the City and establish guiding policies and mitigation measures to address their potential impacts through both preventative and responsive measures. The noise element does not contain specific threshold pertaining to noise, however it does contain noise level exposure criteria for determination of land use compatibility, as shown in Figure 6. Relevant policies to the proposed project include but are not limited to the following (Los Banos 2022):

Policy S-P8.1 Use the community noise level exposure standards, shown in Figure 6, as review criteria for new land uses.

Policy S-P8.2 Require a noise study and mitigation measures for all projects that have noise exposure greater than "normally acceptable" levels based on figure 6. Require that new multifamily and single-family housing projects, hotels, and motels exposed to a Community Noise Equivalent Level (CNEL) of 60 decibels (dB) or greater have a detailed acoustical analysis describing how the project will provide an interior CNEL of 45 dB or less, pursuant to Title 24, Part 2, of the California Code of Regulations. These measures may include, but are not limited to, the following actions:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;
- Increase setbacks for noise sources from adjacent dwellings;
- Install fences, walls, and landscaping that serve as noise buffers;
- Use forced-air mechanical ventilation and soundproofing materials and double glazed windows, or a combination thereof; and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

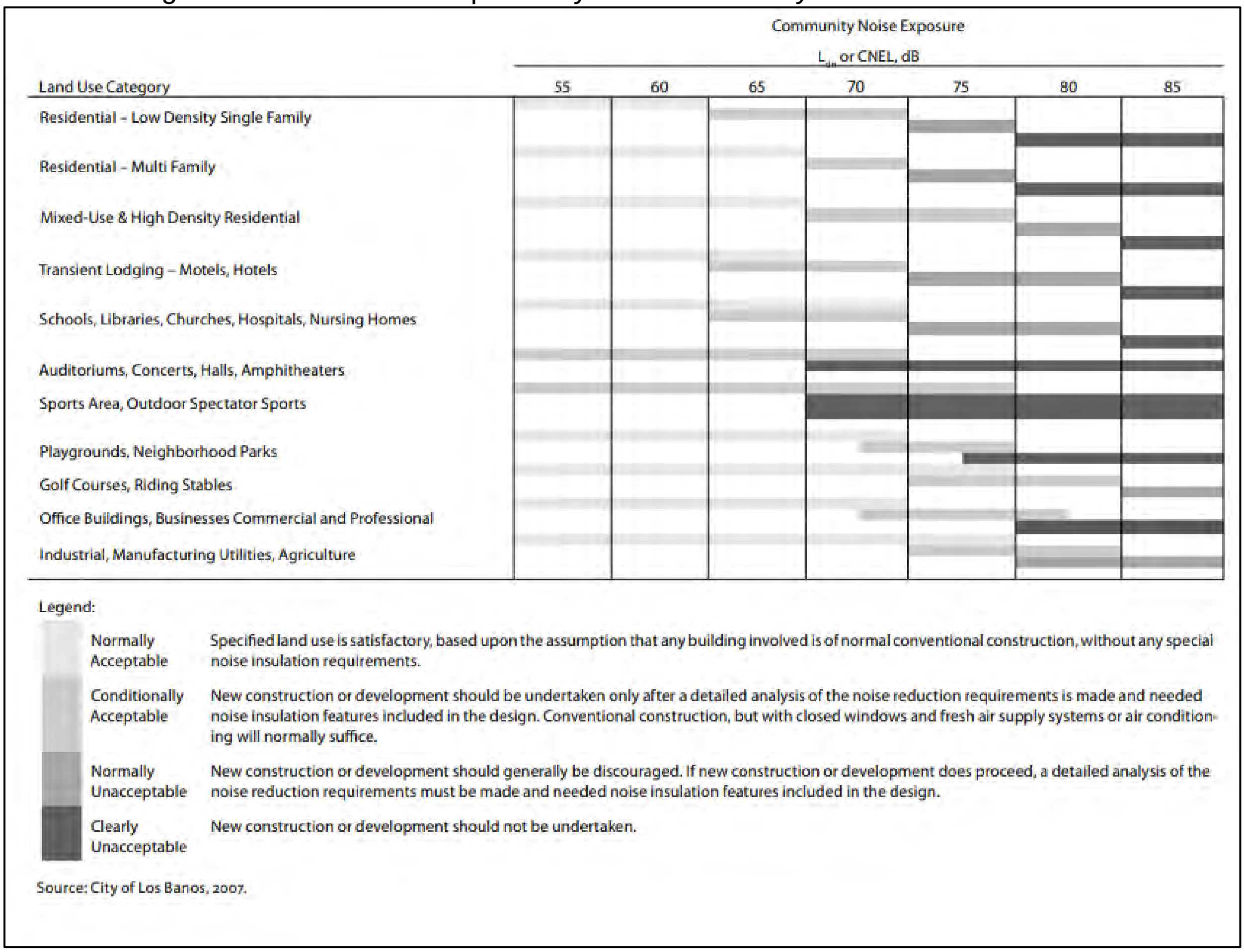
Policy S-P8.3 Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located on an arterial street.

Policy S-P8.4 Discourage sound walls, except along freeways, unless they are needed as a measure of last resort. In all other instances, permit sound walls only upon finding that alternative noise attenuation measures are not available. As an alternative to sound walls, use "quiet pavement," such as rubberized asphalt or open-grade asphalt concrete overlays. Roadway noise reduction of up to 6-7 dBA compared to conventional asphalt overlay may be possible, but the effective lifespan of such pavement should be considered.

Policy S-P8.5 Protect especially sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.

Policy S-P8.6 Require the use of Best Available Control Technology (BACT) to minimize noise from all stationary sources as well as mobile/temporary sources, such as operation of construction equipment.

Figure 6. Land Use Compatibility For Community Noise Environments



Source: City of Los Banos 2022

GROUNDBORNE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of amplitude and frequency. A person's perception of the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement.

The effects of groundborne vibration levels, with regard to human annoyance and structural damage, is influenced by various factors, including ground type, the distance between source and receptor, and duration. Overall effects are also influenced by the type of vibration event, defined as either continuous or transient. Continuous vibration events would include most construction equipment, including pile drivers, and compactors, whereas, transient sources of vibration create single isolated vibration events, such as demolition ball drops and blasting.

The threshold criteria for continuous and transient events are summarized in 4. As indicated in Table 4, the threshold at which there is a risk to normal structures from continuous events is 0.5 inches per second (in/sec) peak particle velocity (ppv) for newer building construction. A threshold of 0.5 in/sec ppv also represents the structural damage threshold applied to older structures for transient vibration sources. With regard to human perception (refer to Table 4.), vibration levels would begin to become distinctly perceptible at levels of 0.04 in/sec ppv for continuous events and 0.25 in/sec ppv for transient events. Continuous vibration levels are considered annoying for people in buildings at levels of 0.2 in/sec ppv (Caltrans 2020).

Table 4. Summary of Groundborne Vibration Levels and Potential Effects

Vibration Level (in/sec ppv)	Human Reaction	Effect on Buildings
0.006 - 0.019	Threshold of perception; possibility of intrusion.	Vibrations unlikely to cause damage of any type.
0.08	Vibrations readily perceptible.	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
0.10	Level at which continuous vibrations begin to annoy people.	Virtually no risk of "architectural" damage to normal buildings.
0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relatively short periods of vibrations).	Threshold at which there is a risk of "architectural" damage to fragile buildings.
0.3 - 0.6	Vibrations become distinctly perceptible at 0.04 in/sec ppv and considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Potential risk of "architectural" damage may occur at levels above 0.3 in/sec ppv for older residential structures and above 0.5 in/sec ppv for newer structures.

The vibration levels are based on peak particle velocity in the vertical direction for continuous vibration sources, which includes most construction activities.
Source: Caltrans 2020

IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Short-Term Construction Noise

Short-term noise impacts associated with construction activities were analyzed based on typical construction equipment noise levels and distances to the nearest noise-sensitive land uses. Noise levels were predicted based on representative off-road equipment noise levels derived from the Federal Highway Administration's (FHWA) Roadway Construction Noise Model based on average equipment usage rates and assuming a noise-attenuation rate of 6 dB per doubling of distance from the source.

Long-term Operational Noise

Operational noise associated with the proposed project would be primarily caused by noise associated with increased traffic generated by the project, noise associated with stationary equipment, and noise associated with the proposed outdoor play areas and introduction of students. Operational noise levels for onsite noise sources (in dBA L_{eq}) were considered equivalent to L_{50} noise levels.
Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on California vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project (JLB 2023b). Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. The project's contribution to traffic noise levels along area roadways was determined by comparing the predicted noise

levels with and without project-generated traffic. To be conservative, the compatibility of the proposed land use was evaluated based on future horizon-year traffic conditions derived from the traffic analysis prepared for this project. Predicted traffic noise levels are included in Appendix A.

Predicted groundborne vibration levels were assessed based on typical construction equipment vibration levels and evaluation criteria. Long-term vibration impacts are anticipated to be minor and were qualitatively assessed. Predicted construction vibration levels are included in Appendix A.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the California environmental Quality Act (CEQA) Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

a) Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Generate excessive groundborne vibration or groundborne noise levels.

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

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, an increase of 5 dBA is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. For purposes of this analysis, a significant increase in ambient noise levels would be defined as an increase of 5 dBA, or greater, that would exceed applicable noise standards.

It is important to note that no standardized criteria have been developed by the State of California or the City of Los Banos for assessing construction noise impacts. However, the Federal Transit Administration (FTA) has identified criteria for the assessment of construction-generated noise levels. For noise-sensitive land uses, such as residential land uses, the FTA criteria identify daytime and nighttime average-hourly noise limits of 90 and 80 dBA L_{eq}, respectively (FTA 2018). Short-term construction noise levels exceeding these levels would be determined to have a potentially significant impact.

Exposure to stationary (non-transportation) noise sources would be considered potentially significant if noise levels would exceed applicable City noise exposure standards (refer to Table 3.). Normal operational hours for onsite land uses would be limited primarily to the daytime hours. Accordingly, newly proposed non-transportation noise sources would be considered to have a potentially significant impact if predicted noise levels at nearby noise-sensitive land uses would exceed the City's daytime noise standard of 55 dBA L_{eq}.

For determination of land use compatibility for proposed land uses, predicted roadway traffic noise levels in excess of the City's 75 CNEL noise standards for schools, libraries, churches, hospitals and nursing homes shown in Figure 6. would be considered a potentially significant impact. Most federal and state regulations and policies establish an acceptable aircraft noise-exposure level of 65 dBA CNEL/L_{dn} for exterior areas and 45 dBA CNEL/L_{dn} for interior areas (Caltrans 2002). Predicted aircraft noise levels exceeding these standards would be considered a potentially significant impact.

The CEQA Guidelines also do not define the levels at which groundborne vibration levels would be considered excessive. For this reason, Caltrans-recommended groundborne vibration criteria were used for the evaluation of impacts based on increased potential for structural damage and human annoyance, as identified in Table 4. For purposes of this analysis, risks of architectural damage (i.e., minor cracking of plaster walls and ceilings) would be considered potentially significant if construction-generated ground vibration levels at nearby structures would exceed 0.5 in/sec ppv. Ground vibration in excess of 0.2 in/sec ppv would be expected to result in a potential for significant short-term increases in levels of annoyance for occupants of nearby sensitive structures (e.g., residential dwellings).

PROJECT IMPACTS

Impact Noise-A:	*Would the project result in the 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?*

Potential short-term and long-term noise impacts associated with the proposed project are discussed, as follows:

SHORT-TERM CONSTRUCTION NOISE IMPACTS

Construction noise typically occurs intermittently and varies depending upon the nature or phase (e.g., demolition/land clearing, grading, and excavation, erection) of construction. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Although noise ranges were found to be similar for all construction phases, the building construction phase tended to involve the most equipment.

Typical noise levels associated with construction equipment are summarized in Table 5. As noted in Table 5, noise levels generated by individual pieces of construction equipment typically range from approximately 77 to 90 dBA L_{max} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Average-hourly noise levels associated with construction equipment generally range from approximately 72 to 82 dBA L_{eq} at 50 feet (FHWA 2008).

Table 5. Typical Construction Equipment Noise Levels

Equipment	Noise Level (dBA at 50 feet)	
	L_{max}	L_{eq}
Backhoes	78	74
Bulldozers	82	78
Compressors	78	74
Cranes	81	73
Concrete Pump Truck	81	74
Drill Rigs	79	72
Dump Trucks	77	73
Excavator	81	77
Generator	81	78
Gradall	83	79
Grader	85	81
Front End Loaders	79	75
Pneumatic Tools	85	82
Pumps	81	78
Rollers	80	73
Scrapers	84	80
Tractor	84	80

Based on measured instantaneous noise levels (L_{max}), average equipment usage rates, and calculated average-hourly (L_{eq}) noise levels derived from the FHWA Road Construction Noise Model (FHWA 2008)

The nearest noise-sensitive land uses located in the vicinity of the proposed project site are residential dwellings, which are located approximately 10 feet or more away from the project on the western border. Depending on the location and types of activities conducted, predicted noise levels at the nearest existing residences could potentially exceed an average-hourly noise limit of 80 dBA L_{eq}. Furthermore, with regard to residential land uses, activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and potential sleep disruption.

For these reasons, this impact would be considered potentially significant.

Mitigation Measure Noise-1: The following measures shall be implemented to reduce short-term construction-related noise impacts:

a. Noise sources associated with construction shall be limited to between 7 a.m. and 9 p.m. on weekdays, and between 8 a.m. and 5 p.m. on weekends.

b. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

c. When not in use, all equipment shall be turned off and shall not be allowed to idle.

d. To the extent locally available, electrified, or alternatively powered construction equipment shall be used.

e. Construction equipment staging areas shall be located at the furthest distance possible from nearby noise-sensitive land uses.

Significance After Mitigation: Implementation of the above mitigation measures would limit construction activities to the less noise-sensitive periods of the day in the City in accordance with Los Banos Municipal Code requirements. Additional measures would also be required to further reduce the potential for noise exposure, including the use of alternatively powered equipment, exhaust mufflers, and engine shrouds. Implementation of these noise-reduction features can reduce construction noise levels by approximately 10 dBA, or more. With implementation of the above mitigation measures and because activities would be short-term, this impact would be considered *less than significant.*

LONG-TERM OPERATIONAL NOISE IMPACTS

On-Site Stationary Noise Sources

On-Site stationary source noise levels of primary concern would include air conditioning units, on-site vehicle parking areas, and outdoor play areas. Noise related impacts associated with these sources are discussed in further detail below.

<u>Predicted Exterior Noise Levels</u>

Outdoor Air Conditioning Units

Commercial use air conditioning units typically generate noise levels of approximately 60-65 dBA L_{eq} at 3 feet when operating. Typical operational cycles for air conditioning units occur for periods of approximately 10 minutes and in 20- to 30-minute intervals. When averaged over an approximate 1-hour period predicted average-hourly noise levels at nearest residential land use would be approximately 41 dBA L_{50}/L_{eq}. Predicted operational noise levels would not exceed the City's daytime average-hourly noise standards of 55 dBA L_{50}. As a result, increased noise levels associated with outdoor air conditioning units would be *less than significant.*

On-Site Parking Areas

The proposed project would include a staff parking lot and a parent/visitor parking lot with a designated drop off zone. Noise levels associated with parking lots typically include; vehicle operations, the opening and closing of vehicle doors, and the operation of vehicle sound systems. The nearest proposed parking areas in relation to nearby existing residential land uses is staff designated parking lot. Which would be located in the northwestern corner of the project site. This parking lot would provide 48 parking spaces and would be located roughly 250 feet from the nearest existing residences located west of the project site on Greenbriar Way. Based on this distance and assuming that all 48 parking spaces would be accessed over an approximate 1-hour period, predicted noise levels at these nearest existing residential land uses would be approximately 37.5 dBA L_{50}/L_{eq}, or less. Predicted parking area noise levels at the nearest residential land uses would not exceed the City's daytime average-hourly noise standards of 55 dBA L_{50}.

Additionally parking lots generate sources of Instantaneous noise such as the setting/arming of car security systems and triggering of car alarms. Noise levels associated with arming car security systems typically range from 60-65 dBA L_0 at five feet, the triggering of car alarms generate on average noise levels of 80-85 dBA L_0 at five feet. To be conservative predicted instantaneous noise sources were calculated from the nearest proposed parking spot to the nearest receptor. Noise levels associated with arming car security systems at the nearest existing receptor would be approximately 43 dBA L_0 or less. Noise levels associated with the triggering of car alarms at the nearest existing receptor would be 63 dBA L_0 or less. Predicted instantaneous noise levels associated with the proposed parking lot would not exceed the City's daytime instantaneous noise standard of 75 dBA L_0. As a result, this impact would be considered *less than significant*.

Outdoor Play Areas

The proposed transitional kindergarten would include several outdoor turf fields and play structures. Noise generated by small playgrounds typically includes elevated children's voices, and occasional adult voices. Based on measurement data obtained from similar land uses, noise levels associated with small playgrounds can generate intermittent noise levels of approximately 55-60 dBA L_{eq} at 50 feet. The nearest existing residential land uses would be located approximately 100 feet from proposed onsite play areas and would be largely shielded from direct line-of-sight by intervening structures. Assuming a maximum noise level of 60 dBA L_{eq} at 50 feet, a distance of 100 feet from the source center, and a minimum noise-level reduction of 5 dB for shielding, predicted noise levels at the nearest residential land uses would be 44 dBA L_{50}/L_{eq}, or less. Predicted noise levels associated with the operation and use of outdoor play areas would not exceed the City's daytime average-hourly noise standards of 55 dBA L_{50}. As a result, this impact would be considered *less than significant*.

LONG-TERM EXPOSURE TO INCREASED ROADWAY TRAFFIC NOISE

Predicted existing traffic noise levels and increases associated with implementation of the proposed project are summarized in Table 6. As depicted, implementation of the proposed project would result in predicted increases in existing traffic noise levels of up to approximately 0.2 dBA CNEL/L_{dn}. As noted earlier in this report, perceptible changes in ambient noise levels do not typically occur at levels below 3 dBA. Implementation of the proposed project would not result in a significant increase (i.e., 3 dBA or greater) along area roadways. For this reason, this impact would be considered less than significant.

Table 6. Predicted Increases in Existing Traffic Noise Levels

Roadway	Predicted CNEL/L_{dn}, 50 Feet from Near-Travel Lane Centerline		Predicted Change	Significant Increase?
	Without project	With project		
East B Street west of Place Road	60.4	60.61	0.2	No
Place Road south of East B Street	58.19	58.34	0.15	No

Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on data obtained from the traffic analysis prepared for this project.
Significant increase is defined as an increase of 3 dBA, or greater.

COMPATIBILITY OF PROPOSED LAND USES WITH ROADWAY TRAFFIC NOISE

Based on the traffic noise modeling conducted for this project, predicted future year 2030 roadway traffic noise levels along East B Street, would be 62 dBA CNEL/L_{dn} at 50 feet from the nearest travel lane. Predicted future horizon year roadway traffic noise levels along Place Road would be 60 dBA CNEL/L_{dn} at 50 feet from the nearest travel lane.

The nearest proposed classroom would be located approximately 77 feet from the center line of Place Road and approximately 150 feet from East B Street. Based on these distances and the predicted future traffic noise levels noted above, predicted traffic noise levels at onsite classrooms would be approximately 58 dBA CNEL/L_{dn}, or less. The nearest proposed outdoor play area would be located approximately 30 feet from the center line of Place road. Based on this distance and the predicted future noise levels noted above, predicted traffic levels at outdoor play areas would be approximately 62 dBA CNEL/L_{dn}, or less.

Predicted future traffic noise levels at proposed on-site school land uses would not exceed the City's normally acceptable land compatibility noise standard of 75 dBA CNEL/L_{dn} for playgrounds and neighborhood parks as well as schools, libraries, hospitals, churches, and nursing homes. As a result, this impact would be considered less than significant.

Impact Noise-B. Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

No major stationary sources of groundborne vibration were identified in the project area that would result in the long-term exposure of proposed onsite land uses to unacceptable levels of ground vibration. In addition, the proposed project would not involve the use of any major equipment or processes that would result in potentially significant levels of ground vibration that would exceed these standards at nearby existing land uses. However, construction activities associated with the proposed project would require the use of various tractors, trucks, and jackhammers that could result in intermittent increases in groundborne vibration levels. The use of major groundborne vibration-generating construction equipment/processes (i.e., blasting, pile driving) is not anticipated to be required for construction of future onsite land uses.

Table 7. Representative Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25 Feet (In/Sec)
Large Bulldozers	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozers	0.003
Source: FTA 2018, Caltrans 2020	

Groundborne vibration levels commonly associated with construction equipment are summarized in Table 7. As identified, groundborne vibration levels generated by construction equipment would be approximately 0.089 in/sec ppv, or less, at 25 feet. The nearest existing structures are residential dwellings, the nearest of which is located approximately 10 feet west of the proposed project site. Assuming a maximum equipment vibration level of 0.089 in/sec ppv, or less, at 25 feet at the nearest project site boundary, predicted vibration levels at this nearest residence would be 0.244 in/sec ppv. Predicted groundborne vibration levels would exceed the minimum recommended criteria for structural damage or human annoyance (0.5 and 0.2 in/sec ppv, respectively) at nearby land uses (refer to Table 4). As a result, short-term groundborne vibration impacts would be considered *potentially significant*.

Mitigation Measure Noise-1: The following measures shall be implemented to reduce short-term construction-related noise impacts:

a. Noise sources associated with construction shall be limited to between 7 a.m. and 9 p.m. on weekdays, and between 8 a.m. and 5 p.m. on weekends.

b. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

c. When not in use, all equipment shall be turned off and shall not be allowed to idle.

d. To the extent locally available, electrified, or alternatively powered construction equipment shall be used.

e. Construction equipment staging areas shall be located at the furthest distance possible from nearby noise-sensitive land uses.

Significance After Mitigation: Implementation of the above mitigation measures would help reduce human annoyance caused by vibrations associated with construction of the proposed project. Construction activities will be restricted to the less noise-sensitive periods of the day in accordance with Los Banos Municipal Code requirements. In addition, construction staging areas shall be located at the furthest distance possible from nearby noise-sensitive land uses. Vibration levels at the nearest existing land uses would not exceed the structural damage threshold of 0.5 in/sec ppv. For these reasons and implementation of the mitigation measures noted above, this impact would be considered less than significant.

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

The project site is not located within 2 miles of a public airport or private airstrip. The nearest airport is the Los Banos Municipal Airport located approximately 2.2 miles west of the project site. The project site is not located within the projected noise contours of this airport. Implementation of the proposed project would not result in the exposure of sensitive receptors to excessive aircraft noise levels, nor would the proposed project affect airport operations. For these reasons, this impact is considered less than significant.

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APPENDIX A

Noise Prediction Modeling & Supportive Documentation

Segment Volume

Existing				
Segment	**Peak Hour**	**ADT**	**Speed**	**Total number of lanes**
East B St. West of Place RD.	968	9680	25	3
Place Road South of East B St.	581	5810	25	3

Project Completion				
Segment	**Peak Hour**	**ADT**	**Speed**	**Total number of lanes**
East B St. West of Place RD.	1016	10160	25	3
Place Road South of East B St.	602	6020	25	3

Horizon Year with Project Peak				
Segment	**Peak Hour**	**ADT**	**Speed**	**Total number of lanes**
East B St. West of Place RD.	1266	12660	25	3
Place Road South of East B St.	817	8170	25	3

Existing	Distance to CNEL Contours (ft)			
CNEL @ 50ft from NTL	**70**	**65**	**60**	**55**
60.4	0	0	68.9	214.3
58.19	0	0	0	129.1

Project Completion	Distance to CNEL Contours (ft)			
CNEL @ 50ft from NTL	**70**	**65**	**60**	**55**
60.61	0	0	72.2	224.9
58.34	0	0	0	133.7

Horizon Year with Project Peak	Distance to CNEL Contours (ft)			
CNEL @ 50ft from NTL	**70**	**65**	**60**	**55**
61.57	0	0	89.4	280.1
59.67	0	0	58.6	181

Source	Noise level/Distance	Distance to receptor (ft)	Shielding	Noise level (dB) at nearest receptor
Construction	**82 dB / 50 ft**	**7**	**0**	**96**
Air conditioning unit	**60 dB / 3 ft**	**45**	**0**	**41**
Onsite Parking	**49 dB / 50 ft**	**250**	**0**	**37.5**
Arming Car Alarm	**65 dB / 5 ft**	**65**	**0**	**43**
Triggering Car Alarm	**85 dB / 5 ft**	**65**	**0**	**63**
Outdoor Play area	**60 dB / 50 ft**	**100**	**1**	**44**
Source	Peak Particle Velocity at 25 feet	Distance to receptor (ft)	Shielding	Vibration level (in/sec ppv) at nearest receptor
Construction	**0.089**	**10**	**0**	**0.244**

NOISE MEASUREMENT SURVEY FORM

SHEET 1 *OF* 2

DATE:	12/8/2023
PROJECT:	Los Banos Unified School District Transitional Kindergarten
LOCATION:	Los Banos, CA
MONITORING STAFF:	Dylan Mick

LOCATION MAP: *(Include a map of noise measurement locations AND photographs for measurement locations on attached worksheet. Include additional sheets as necessary. Where possible include GPS coordinates.)*

NOISE MEASUREMENT CONDITIONS & EQUIPMENT

MET CONDITIONS & MONITORING EQUIPMENT:	TEMP: 60 F. | HUMIDITY: 58 % | WIND SPEED: 8 MPH | WIND DIR: WNW | GROUND: Dry			
	CLOUD COVER BY CLASS (OC=OVERCAST):	3	(1. HEAVY OC, 2. LIGHT OC, 3. SUNNY, 4. CLEAR NIGHT, 5. OC NIGHT)	
	MET. METER:	Kestrel 5500		
NOISE MONITORING EQUIPMENT:	Piccolo Model:	Piccolo-2	S/N:	P0223071711
	MICROPHONE:		S/N:	
	CALIBRATOR:	CAL200	S/N:	2744
NOISE MONITORING SETUP:	WITHIN 10 FT OF REFLECTIVE SURFACE?:	NO	MICROPHONE HEIGHT AGL (FT):	5
CALIBRATED PRIOR TO AND UPON COMPLETION OF MEASUREMENTS:		yes	METER SETTINGS: A-WHT	SLOW

NOISE & TRAFFIC MEASUREMENTS

MEASUREMENT LOCATION	MEASUREMENT DATE/TIME	DURATION	MEASUREMENT LOCATION	PRIMARY NOISE SOURCES NOTED	MEASURED NOISE LEVELS LEQ	Lmax
ST1	12/7/23 11:28	10	Place Roads. Apprx. 350 feet south of East B Street	adjacent traffic, leaf blower, birds	62.2	81.6
ST2	12/7/23 11:52	10	Corner of East B Street and Place Road	adjacent/non-adjacent traffic	65.1	80.3
ST3	12/7/23 12:16	10	End of Greenbrair Way, next to project site boundary	traffic, mail truck, dogs barking	52	66.7
ST4	12/7/23 12:30	10	Culdusac of Banbuy Court	traffic, birds, school bell, dogs barking	45.8	63.3

NOISE MEASUREMENT SURVEY FORM

	SHEET	2	OF	2

DATE:	12/8/2023
PROJECT:	Los Banos Unified School District Transitional Kindergarten
LOCATION:	Los Banos, CA
MONITORING STAFF:	Dylan Mick

SITE PHOTO(S): (Refer to data sheets for noise measurement locations)

MEASUREMENT LOCATION 1

MEASUREMENT LOCATION 2

MEASUREMENT LOCATION 3

MEASUREMENT LOCATION 4

Appendix 8

Los Banos Unified School District

Early Learning Center Project

Traffic Impact Analysis Report

Traffic Impact Analysis Report

Los Banos Unified School District Transitional Kindergarten

Located on the Southwest Corner of Place Road and B Street

In the City of Los Banos, California

Prepared for:

Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644

January 5, 2024

Project No. 049-003

JLB TRAFFIC ENGINEERING, INC.

Traffic Engineering, Transportation Planning, & Parking Solutions

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Traffic Engineering, Transportation Planning, & Parking Solutions

Traffic Impact Analysis Report

For the Los Banos Unified School District Transitional Kindergarten located on the Southwest Corner of Place Road and B Street

In the City of Los Banos, CA

January 5, 2023

This Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

Jose Luis Benavides, PE, TE

President

REGISTERED PROFESSIONAL ENGINEER JOSE LUIS BENAVIDES No.T 2328 Exp:06/30/25 TRAFFIC STATE OF CALIFORNIA

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Introduction and Summary

Introduction

This Report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the Los Banos Unified School District (LBUSD) Transitional Kindergarten (TK) (Project) located on the southwest corner of Place Road at B Street. The Project proposes to develop a TK school with 19 classrooms that serves up to 300 students in two sessions. The Project is anticipated to serve all TK students residing withing the LBUSD boundary. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term and long-term roadway needs, determine potential roadway improvement measures and identify any critical traffic issues that should be addressed in the ongoing planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. The Scope of Work was prepared via consultation with City of Los Banos, County of Merced, and Caltrans staff.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Los Banos and Caltrans.

Existing Traffic Conditions

- JLB conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to obtain collision reports for the most recent three-year period. Based on a review of the collision reports, a total of 16 collisions were reported within the influence zone of the study intersections. No study intersection averaged over five (5) preventable collisions per year. After a thorough review of the data contained within the five-year collision analysis period, there are no recommendations to the study intersections due to the low number of yearly preventable collisions. Details of these collisions are presented later in this Report.
- At present, the study intersections of Mercey Springs Road at San Luis Street and Miller Lane at San Luis Street exceed their LOS threshold during the AM peak period. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Existing plus Project Traffic Conditions

- The Project proposes to have two (2) access points along the south side of B Street and one (1) access point along the west side of Place Road. These access points are described in further detail later in this Report.
- JLB analyzed the location of the existing and proposed roadways and access points. This review revealed that all access points are located at points that minimize traffic operational impacts to existing and future roadway networks. Additional details on this subject are presented later in this Report.

- At buildout, the proposed Project is estimated to generate approximately 1,214 daily trips, 287 AM peak hour trips and 520 MD peak hour trips.
- Under this scenario, the study intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project contribute a pro-rata fair share for the intersection modifications. However, the Project driveway improvements are the sole responsibility of the Project proponent. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 33,737 weekday daily trips, 2,257 weekday AM peak hour trips and 2,374 weekday MD peak hour trips.
- Under this scenario, the study intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project contribute a pro-rata fair share for the intersection modifications. However, the Project driveway improvements are the sole responsibility of the Project proponent. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Cumulative Year 2044 No Project Traffic Conditions

- Under this scenario, the study intersections of Mercey Springs Road at B Street, Las Palmas Street at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Cumulative Year 2044 plus Project Traffic Conditions

- Under this scenario, the study intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project contribute a pro-rata fair share for the intersection modifications. However, the Project driveway improvements are the sole responsibility of the Project proponent. Additional details as to the recommended improvements for these intersections are presented later in this Report.

Project's Equitable Fair Share

- It is recommended that the Project contribute their equitable fair share as listed in Table XI for the future improvements necessary to maintain an acceptable LOS.

Scope of Work

The TIA focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On April 17, 2023, a Draft Scope of Work for the preparation of a Traffic Impact Analysis for this Project was provided to the City of Los Banos, Merced County and Caltrans for their review and comment.

On May 12, 2023, the City of Los Banos replied to the Scope of Work stating that the TIA should include a PM peak period and the Northpointe Residential Development. After further discussion, the City of Los Banos agreed that a midday peak of 11:00 AM – 1:00 PM would be used (as it coincided with the highest amount of Project traffic) rather than the typical PM peak period. On May 12, 2023, the County of Merced accepted the Scope of Work as presented. After the Draft Scope of Work was sent on April 17, 2023, JLB followed up with Caltrans on May 3, 8 12, 17 and 22. However, JLB received no reply or comment from Caltrans.

Based on the comments received, this TIA includes the near term project of Northpointe Residential and a midday peak period (11:00 AM – 1:00 PM). The Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The existing intersection peak hour turning movement counts and a spot speed survey were conducted at the study intersections in January, April and August of 2023 while school in the vicinity of the Project site were in session. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study intersections are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

Location

1. Mercey Springs Road (State Route 165) / B Street
2. Main Access / Las Palmas Street / B Street
3. Place Road / B Street
4. Place Road / Parent Exit (Future)
5. Mercey Springs Road (State Route 165) / San Luis Street
6. Miller Lane / San Luis Street
7. Place Road / San Luis Street
8. Miller Lane / Pacheco Boulevard (State Route 152)

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in January, April and August 2023.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the Project Only Trips to the Existing volumes. The Project Only Trips to the study facilities were developed based on existing travel patterns, the surrounding roadway network, engineering judgment, data provided by the LBUSD, knowledge of the study area, existing residential densities and the *Los Banos General Plan 2042* Circulation Element in the vicinity of the Project site.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. Existing volumes were adjusted in this scenario and all scenarios moving forward to account for a change in the roadway network anticipated to occur after five (5) years. This change in roadway network is referring to Place Road extending south of San Luis Street to connect with Pacheco Boulevard. Adjustments were made to Existing volumes to reroute through Place Road instead of utilizing surrounding roads such as Miller Lane. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips and the Project Only Trips to the Baseline Volumes scenario. The Near Term Trips to the study facilities were developed based on existing travel patterns, the surrounding roadway network, engineering judgment, data from existing studies, knowledge of the study area, existing residential and commercial densities and the *Los Banos General Plan 2042* Circulation Element in the vicinity of the Project site.

Cumulative Year 2044 No Project Traffic Conditions

This scenario evaluates total traffic volumes and roadways conditions based on the Cumulative Year 2044 No Project Traffic Conditions. The Cumulative Year 2044 No Project traffic volumes were obtained by applying a growth rate of 1.1% for 21 years to the Existing volumes to create the Cumulative Year 2044 No Project Traffic Conditions volumes. This growth rate was derived from Merced County Association of Governments (MCAG) models for the year 2023 and year 2046. The calculations of this growth rate are found in Appendix B. It is important to note that this TIA does not assume that the State Route 152 Los Banos Bypass Plan takes place. If the State Route 152 Los Banos Bypass Plan does take place, traffic volumes along State Route 152 would be significantly lower.

Cumulative Year 2044 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadways conditions based on the Cumulative Year 2044 plus Project Traffic Conditions. The Cumulative Year 2044 plus Project traffic volumes were obtained by adding the Project Only Trips to the Cumulative Year 2044 No Project Traffic Conditions scenario.

LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from “A” to “F”, with “A” indicating no congestion of any kind and “F” indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. HCM 6 Edition methodologies do not allow the analysis of non-NEMA phasing. Therefore, the intersection of Miller Lane at Pacheco Boulevard uses HCM 2000 methodologies. Lane configurations not reflective of existing conditions are a result of software limitations and thus represent a worst-case scenario. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix C.

While LOS is no longer the criteria of significance for traffic impacts in the state of California, the City of Los Banos continues to apply congestion-related conditions or requirements for land development projects through planning approval processes outside of CEQA Guidelines in order to continue the implementation of Los Banos *General Plan 2042* policies.

LOS Thresholds

The City of Los Banos General *Plan 2042* Circulation Element has established LOS D as the acceptable level of traffic congestion on most intersections. Therefore, the LOS D threshold was utilized to evaluate the potential significance of LOS impacts to City of Los Banos roadway facilities.

The County of Merced has established LOS D as the threshold for any roadway within an urban setting or rural freeways and LOS C for all other rural roadways. Therefore, LOS D or LOS C is used to evaluate the potential significance of LOS impacts to Merced County intersections depending on the classification of the roadway. In this case, no study facilities fall within the County of Merced SOI, therefore, the City of Los Banos or Caltrans LOS thresholds are utilized.

Caltrans no longer considers delay as a significant impact to the environment, for land use projects and plans. According to the Caltrans document VMT Focused Transportation Impact Study Guidelines dated May 2020, Caltrans review of land use projects and plans is focused on a VMT metric consistent with CEQA. In this TIA, the study intersections of Mercey Spring Road at B Street, Mercey Springs Road at San Luis Street and Miller Lane at Pacheco Boulevard fall within the Caltrans SOI. The Caltrans District 10 State Route 152 Transportation Concept Report (TCR) established LOS F as the concept LOS for State Route 152 without the Los Banos Bypass Plan and LOS D as the concept LOS for State Route 152 with the Los Banos Bypass Plan. The Caltrans District 10 State Route 165 Transportation Concept Report (TCR) established LOS F as the concept LOS for State Route 165 without the Los Banos Bypass Plan and LOS D as the concept LOS for State Route 165 with the Los Banos Bypass Plan.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- The timing plan for State Route 152 at Miller Lane and State Route 165 at B Street from Caltrans was utilized in setting the timing for these intersections
- Yellow time consistent with the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) based on approach speeds (Caltrans 2020)
- Yellow time of 3.2 seconds for left-turn phases
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- At existing intersections, the heavy vehicle factor observed for each intersection or a minimum of 3 percent were utilized under all scenarios.
- The number of observed pedestrians at existing intersections was utilized under all study scenarios.
- An average of 10 pedestrian calls per hour at signalized intersections.
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios.
- At new intersections, the PHF of the nearest intersection is utilized.
- For the Cumulative Year 2044 scenarios, the following PHF's were utilized to reflect school traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHF's tend to increase to 0.90 or higher in urban settings. The PHF's were established based on historical traffic counts collected by JLB for intersections in proximity of school sites.
  - For the intersections of Las Palmas Street at B Street, Place Road at B Street, Miller Lane at San Luis Street and Place Road at San Luis Street, the following PHF's were utilized:
    - A PHF of 0.86, or the existing PHF if higher, is utilized during the AM peak.
  - A PHF of 0.92, or the existing PHF if higher, is utilized for all remaining study intersections.
- A 5.0 second increase in delay, between a no project and a plus project scenario of the same year, is an applicable standard of significance for City of Los Banos study facilities.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

Mercey Springs Road (State Route 165) is an existing north-south major arterial divided by a two-way left-turn lane in the vicinity of the proposed Project site. In this area, Mercey Springs Road is primarily a two-lane major arterial throughout the City of Los Banos SOI. The City of Los Banos *General Plan 2042* Circulation Element designates Mercey Spring Road as an arterial throughout the City of Los Banos boundary. Planned road improvements include intersection improvements at Pacheco Boulevard and Mercey Springs Road and expansion to a four-lane facility between Henry Miller Avenue and Copa De Oro Avenue.

The TCR for State Route 165 by Caltrans District 10 classifies State Route 165 (Mercey Springs Road at this location) as a two- to four-lane conventional highway. The Caltrans District 10 State Route 165 TCR does not state any improvement plans for this segment aside from the expansion to a four-lane facility throughout this segment. The State Route 165 TCR designates this segment of State Route 165 as a conventional highway.

Miller Lane is an existing north-south two-lane undivided local roadway in the vicinity of the proposed Project site. In this area, Miller Lane is a two-lane local roadway between San Luis Street and Pacheco Boulevard (State Route 152). The City of Los Banos *General Plan 2042* Circulation Element designates Miller Lane as a local roadway between San Luis Street and Pacheco Boulevard.

Las Palmas Street is an existing north-south undivided local roadway in the vicinity of the proposed Project site. In this area, Las Palmas Street is a two-lane local roadway between Mission Drive and B Street. The City of Los Banos *General Plan 2042* Circulation Element designates Las Palmas Street as a two-lane local roadway between Mission Drive and B Street.

Place Road is an existing north-south two-lane undivided collector in the vicinity of the proposed Project site. In this area, Place Road is a two-lane collector between Regency Drive and Pioneer Road. The City of Los Banos *General Plan 2042* Circulation Element designates Place Road as a collector between Regency Drive and Pioneer Road. Planned improvements include connecting Place Road to the north side of Pacheco Boulevard and realigning Place Road south of the Rail Trail to Pioneer Road.

B Street is an existing east-west two-lane undivided minor arterial in the vicinity of the proposed Project site. In this area, B Street is a two-lane minor arterial divided by a two-way left turn between 7th Street and Mercy Springs Road and a two-lane undivided minor arterial between Mercy Springs Road and Ward Road. The City of Los Banos *General Plan 2042* Circulation Element designates B Street as a collector between 7th Street and Ward Road.

San Luis Street is an existing east-west two-lane undivided collector adjacent to the proposed Project site. In this area, San Luis Street is a two-lane undivided collector between Mercy Springs Road and Ward Road and a two-lane divided collector between Ward Road and Pacheco Boulevard. The City of Los Banos *General Plan 2042* Circulation Element designates San Luis Street as a collector between Mercy Springs Road and Pacheco Boulevard.

Pacheco Boulevard (State Route 152) is an existing east-west four-lane divided major arterial in the vicinity of the proposed Project site. In this area, Pacheco Boulevard is a primarily four-lane major arterial throughout the City of Banos SOI. The City of Los Banos *General Plan 2042* Circulation Element designates Pacheco Boulevard as a major arterial throughout the City of Los Banos SOI. Planned improvements include intersection improvements at Pacheco Boulevard and Mercy Springs Road, the State Route 152 Bypass north of Los Banos and a possible widening to six-lanes from west of Badger Pass to the State Route 152 Bypass.

The TCR for State Route 152 by Caltrans District 10 classifies State Route 152 (Pacheco Boulevard at this location) as a four-lane expressway. The Caltrans District 10 State Route 152 TCR does not state any improvement plans for this segment aside from the Los Banos Bypass. The State Route 152 TCR designates this segment of State Route 152 as an expressway.

Collision Analysis

JLB conducted a search of the Statewide Integrated Traffic Reporting System (SWITRS) to obtain collision reports for the most recent three-year period (January 1st, 2020 to December 31st, 2022). The SWITRS "is a database that serves as a means to collect and process data gathered from a collision scene. The internet SWITRS application is a tool by which the California Highway Patrol (CHP) staff and members of its Allied Agencies throughout California can request several types of statistical reports in an electronic format." All collision summary reports between January 1st, 2020 and December 31st, 2022 were included in the collision analysis. In the three-year period, a total of 16 collisions were reported within the influence zone (assumed to be within 250 feet) of the study intersections. The SWITRS collision data are found in Appendix D.

Table I summarizes the type of collision, severity, violation and identifies involvement with another vehicle, a pedestrian/bicyclist or a fixed object. After a thorough review of the data contained within the collision for the five-year analysis period, there are no recommendations to the study intersections due to the low number of yearly preventable collisions.

Table I: Three-Year (2020-2022) Intersection Collision Analysis

ID	Intersection	Number of Collisions	*Type of Collision*						*Severity*					*Type of Violation*						*Motor Vehicle Involved with…*			
			Broadside	*Rear End*	*Head-On*	*Hit Object*	*Sideswipe*	*Other*	*Fatal*	*Severe Injury*	*Other Visible Injury*	*Complaint of Pain*	*Property Damage Only*	*Traffic Signals & Signs*	*Right of Way*	*Unsafe Speed*	*Improper Turning*	*Driving Under Influence*	*Other*	*Pedestrian/Bicyclist*	*Other Motor Vehicle*	*Fixed Object*	*Other*
1	Mercey Springs Road / B Street	**8**	1	5	-	2	-	-	-	-	1	4	3	1	-	3	2	1	1	-	6	2	-
2	Las Palmas Street / B Street	**2**	-	1	-	-	-	1	-	-	1	-	1	-	-	-	1	-	1	1	1	-	-
3	Place Road / B Street	**4**	1	2	-	-	1	-	-	-	1	-	3	2	-	1	-	-	1	-	4	-	-
5	Mercey Springs Road / San Luis Street	**7**	3	1	-	-	3	-	-	-	1	-	6	-	2	2	1	1	1	-	7	-	-
6	Miller Lane / San Luis Street	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Place Road / San Luis Street	**1**	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-
8	Miller Lane / Pacheco Boulevard	**18**	2	7	2	2	3	2	-	1	4	5	8	2	2	5	4	2	3	1	15	2	-
Totals		**40**	**7**	**16**	**2**	**5**	**7**	**3**	**-**	**1**	**8**	**9**	**22**	**5**	**4**	**11**	**8**	**5**	**7**	**2**	**33**	**5**	**-**

The collisions in the past three years were analyzed in terms of rate per million entering vehicles and compared to statewide averages. Statewide averages were taken from Caltrans' *2021 Crash Data on California State Highways*. Based on this comparison, the rate of accidents per million entering vehicles is considerably less in terms of total accidents, injuries and fatalities for most intersections. The exceptions are for the intersections of Mercey Springs Road at San Luis Street in terms total accident rate and Miller Lane at Pacheco Boulevard in terms of injury rate and total accident rate. Table II displays a comparison of the rates experienced in the last three years at the existing study intersections to the statewide averages. However, there are no recommendations considering the low number of preventable accidents.

Table II: Statewide Average Comparison

ID	Intersection	Statewide Average Rate per MEV			Actual Rate per MEV		
		Fatal	Fatal + Inj.	Total	Fatal	Fatal + Inj.	Total
1	Mercey Springs Road / B Street	0.003	0.218	0.550	0.000	0.211	0.337
2	Las Palmas Street / B Street	0.005	0.159	0.360	0.000	0.088	0.175
3	Place Road / B Street	0.003	0.218	0.550	0.000	0.059	0.234
5	Mercey Springs Road / San Luis Street	0.005	0.159	0.360	0.000	0.057	0.401
6	Miller Lane / San Luis Street	0.003	0.122	0.390	0.000	0.000	0.000
7	Place Road / San Luis Street	0.005	0.159	0.360	0.000	0.000	0.089
8	Miller Lane / Pacheco Boulevard	0.003	0.218	0.550	0.000	0.475	0.855

Note: MEV = Million Entering Vehicles

Traffic Signal Warrants

The CA MUTCD indicates that an engineering study of traffic conditions, pedestrian characteristics and physical features of an intersection shall be conducted to determine whether the installation of traffic signal controls are justified. The CA MUTCD provides a total of nine (9) warrants to evaluate the need for traffic signal controls. These warrants include 1) Eight-Hour Vehicular Volume, 2) Four-Hour Vehicular Volume, 3) Peak Hour, 4) Pedestrian Volume, 5) School Crossing, 6) Coordinated Signal System, 7) Crash Experience, 8) Roadway Network and 9) Intersection Near a Grade Crossing. Signalization of an intersection may be appropriate if one or more of the signal warrants is satisfied. However, the CA MUTCD also states that "[t]he satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic control signal" (Caltrans 2020).

If traffic signal warrants are satisfied when a LOS threshold impact is identified at an unsignalized intersection, then installation of a traffic signal control may serve as an improvement measure. For instances where traffic signal warrants are satisfied, a traffic signal control is not considered to be the default improvement measure. Since the installation of a traffic signal control typically results in an increase in delay to the major street and thus the majority of traffic, an attempt is made to improve the intersection approach lane geometrics in order to improve its LOS while maintaining the existing intersection controls. If the additional lanes did not result in acceptable LOS at the intersection, then in those cases implementation of a traffic signal control would be considered.

Warrant 3 was prepared for the unsignalized intersections under the Existing Traffic Conditions scenario. These warrants are contained in Appendix J. At present, the intersections of Las Palmas Street at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street satisfy Warrant 3 during one or both peak periods. Based on the traffic signal warrants, operational analysis and engineering judgment, it is recommended that the signalization or implementation of a roundabout would need to be considered for the intersection of Mercey Springs Road at San Luis Street. It is understood that Caltrans requires the preparation of an Intersection Control Evaluation (ICE) study before it determines the intersection control it will construct. The ICE is a more in depth study which needs to include preliminary design plans and construction cost estimates, and as such, is beyond the scope of work for this TIA. Therefore, this TIA assumes that the intersection of Mercey Springs Road at San Luis Street would be signalized.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing Traffic Conditions turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table III presents a summary of the Existing peak hour LOS at the study intersections.

At present, the intersections of Mercey Springs Road at San Luis Street and Miller Lane at San Luis Street exceed their LOS threshold during the AM peak period. As a result, the following improvements are recommended to improve the LOS deficiencies at these intersections.

- Mercey Springs Road / San Luis Street
  - Signalize the intersection with protected left-turn phasing in the southbound direction.
- Miller Lane / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane; and
  - Modify the westbound left-through-right lane to a through-right lane.

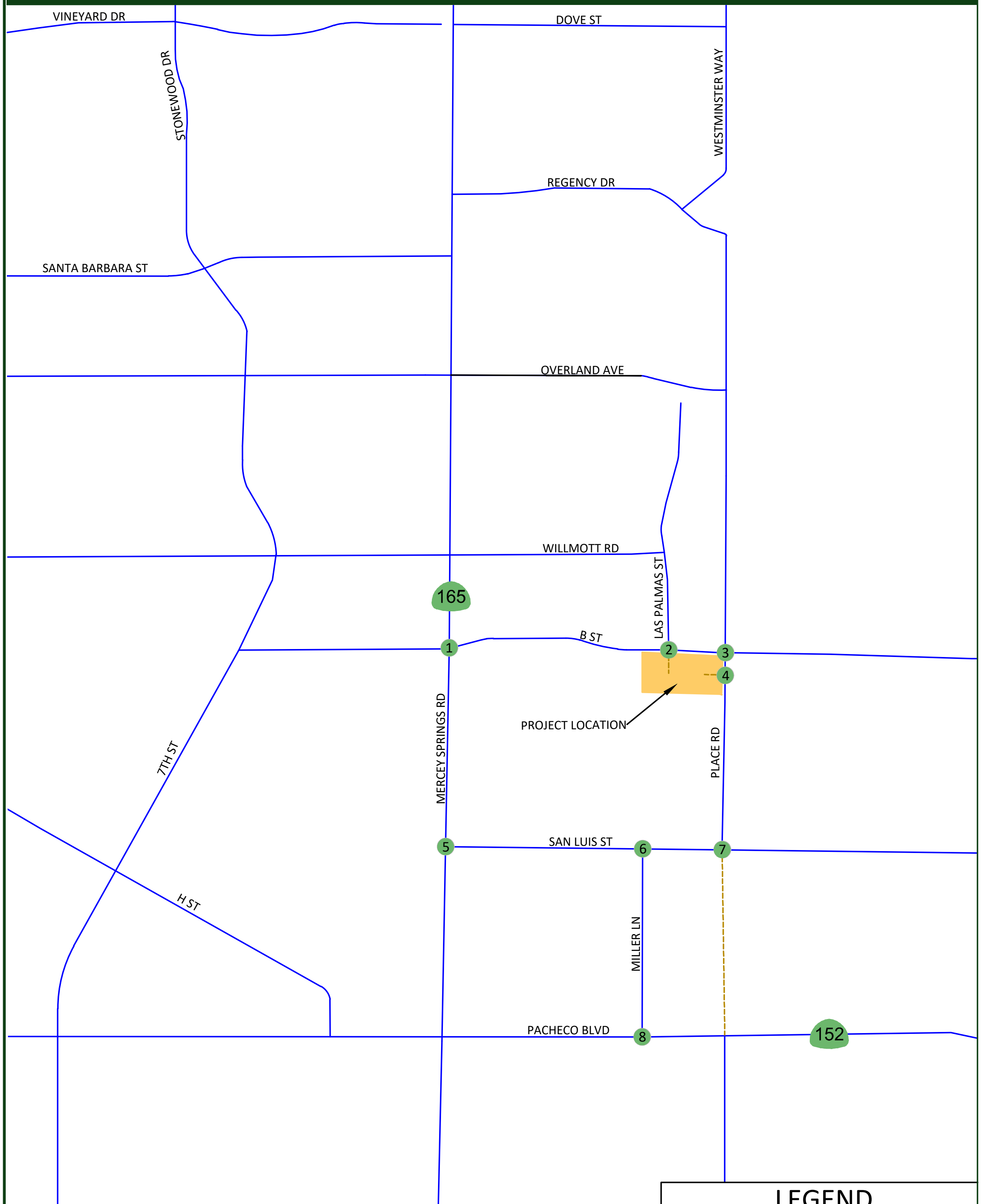
Table III: Existing Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		MD (11 - 1) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Mercey Springs Road / B Street	Traffic Signal	51.9	D	22.5	C
2	Las Palmas Street / B Street	One-Way Stop	27.0	D	10.3	B
3	Place Road / B Street	Traffic Signal	25.0	C	13.0	B
4	Place Road / Project Driveway	Does Not Exist	-	-	-	-
5	Mercey Springs Road / San Luis Street	One-Way Stop	**59.4**	**F**	20.9	C
		Traffic Signal (Improved)	17.2	B	9.4	A
6	Miller Lane / San Luis Street	All-Way Stop	**64.8**	**F**	8.8	A
		All-Way Stop (Improved)	21.6	C	8.9	A
7	Place Road / San Luis Street	One-Way Stop	27.4	D	11.2	B
8	Miller Lane / Pacheco Boulevard	Traffic Signal	19.3	B	17.5	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Vicinity Map

Figure 1



LEGEND

(#) = STUDY INTERSECTION

- - - = FUTURE ROADWAY

Not To Scale

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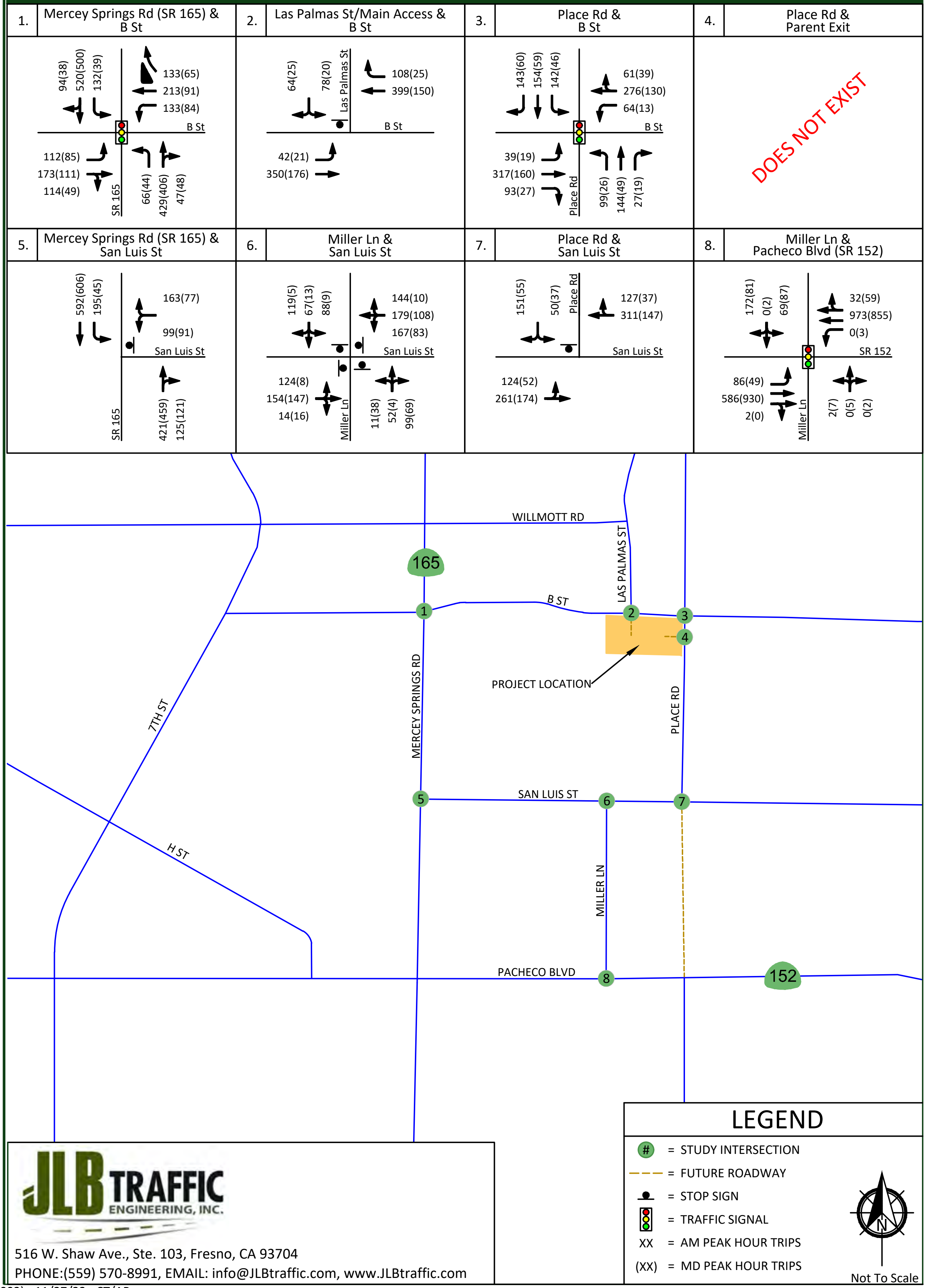
Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Figure 2

Existing - Traffic Volumes, Geometrics and Controls



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Existing plus Project Traffic Conditions

Project Description

LBUSD proposes to develop a TK (Project) located on the southwest corner of Place Road at B Street. The Project proposed to develop a TK school consisting of 19 classrooms, an administration/multi-purpose building and play areas. This Project would serve up to 300 students. The Project is anticipated to serve all TK students within the LBUSD boundary. Based on information provided to JLB, the Project will be developed on a site that was planned to accommodate single-family residential. Figure 3 illustrates the latest combined Project Site Plan.

Project Access

Based on the Project Site Plan, access to and from the Project site is predominantly from three (3) proposed access points. The first proposed access point is located along the south side of B Street at the western boundary of the Project site. This proposed access point is limited to right-in right-out access and dedicated for employees and school buses. The second proposed access point is located along the south side of B Street aligned with Las Palmas Street. This proposed access point is a full access point and dedicated for parents. The third access point is located along the west side of Place Road approximately 200 feet south of B Street. This proposed access point is limited to right-out access and dedicated as an exit for parents. Furthermore, there is an emergency access that connects Greenbriar Way west of the Project to Place Road east of the Project. The access to Place Road is located on the west side of Place Road along the southern boundary of the Project. Parking is currently restricted on all roadways adjacent to the proposed Project. It is recommended that the Project continue to restrict parking in these areas.

JLB analyzed the location of the existing and proposed roadways and access points relative to those in the vicinity of the Project site. Previous versions of the site plan have been modified to improve internal circulation and access point locations. A review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway networks. However, it is recommended that raised medians and signage be used to limit the access to right-in right-out at the Employee access and the Parent Exit access and that the entrance curves be smoothed out as much as possible to reduce the need to do an abrupt change in travel pattern. JLB is of the opinion that such can be accommodated with little to no loss in the number of parking stalls. A Project Site Plan can be found in Figure 3.

Circulation

Circulation between parents and staff will be largely separate. Staff will enter and exit via the access along the south side of B Street at the western boundary of the Project. Parents will enter through the main access and exit at either the main exit or the access along the west side of Place Road. Both the parent side and the staff side will have a path that can be used to circulate the parking lot. The Project also contains a student drop-off approximately 350 feet in length. This student drop-off aisle can fit approximately 17 vehicles. Considering that there are estimated to be 22 students bussed to the Project per session, there are 128 students that will be dropped off or walked to the Project per session. Additionally, there are 35 parking spots designated for parents/visitors that will be used during drop-off. Given this information, it is estimated that the drop-off aisle and parking spots contain sufficient space for parents to drop-off school children during one session. Data collected by JLB for an elementary school showed that drop-off of elementary school children took an average of 44 seconds. However, it is assumed that transitional kindergarten students will require additional time. An assumption of two (2) minutes to drop-off or pick up was used in these calculations. The time to drop-off or pick-up every student was found to be approximately 12 minutes. Therefore, it is recommended that the morning and afternoon sessions be separated by thirty minutes in order to provide time for parents to drop-off and pick-up between the two sessions separately. It is also recommended that parents of children in the second session not be allowed to drop off their children more than 15 minutes prior to the start of session.

Corner Sight Distance

A Corner Sight Distance (CSD) Analysis was conducted by JLB pursuant to the guidelines within the Highway Design Manual (HDM). Based on HDM, at private driveways "the minimum Corner Sight Distance shall be equal to the stopping sight distance given in Table 201.1 . . .". The speed limit along B Street west of Place Road and Place Road south of B Street is unposted. B Street west of Mercey Springs is 30 MPH. based on engineering judgment, JLB believe that the appropriate speed limit for B Street between Mercey Springs Road and Place Road and that of Place Road between B Street and San Luis street is likely 35 MPH. Therefore, the CSD for the unsignalized driveways on B Street and on Place Road is 335 feet and the CSD for the driveway on Place Road is 250 feet. Appendix K includes the CSD evaluations for a critical speed of 35 MPH. These CSD figures display hatched areas where obstructions greater than two (2) feet above street grade should not be approved.

Bell Schedules

LBUSD staggers the starts of existing schools in an attempt to alleviate traffic surrounding schools. LBUSD currently has nine (9) existing Kindergartens that start between 8:00 AM and 8:25 AM in increments of five (5) minutes. These Kindergartens dismiss between 11:45 AM and 12:10 PM in increments of five (5) minutes. LBUSD currently has nine (9) existing Elementary Schools that start between 7:55 AM and 8:20 AM in increments of five (5) minutes. These Elementary Schools dismiss 1st through 3rd grade students between 2:20 PM and 2:35 PM in increments of five (5) minutes. These Elementary Schools dismiss 4th through 6th grade students between 2:20 PM and 2:35 PM in increments of five (5) minutes. LBUSD currently has two (2) Junior High Schools that both start at 8:45 AM and end at 3:25 PM. LBUSD currently has three (3) High Schools that all start at 8:25 AM and dismiss at 3:40 PM except for San Luis High school which dismisses at 2:00 PM. Students attending the Project will be split into two (2) sessions. The First session has a proposed start time of 7:40 AM and an end time of 11:25 AM. The second session has a start time of 11:35 AM and an end time of 3:20 PM. As explained in the Circulation section, it is recommended that the morning and afternoon sessions be separated by thirty minutes.

Project Trip Generation

Trip generation rates for the proposed Project were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE) and information provided by LBUSD. Table IV presents the trip generation for the proposed Project with estimated trip generation rates for the transitional kindergarten land use. These were estimated using the operation statement and other similar land uses such as Day Care (565). At buildout, the proposed Project is estimated to generate approximately 1,214 daily trips, 287 AM peak hour trips and 520 MD peak hour trips.

Table IV: Project Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM (7-9) Peak Hour*						*MD (11-1) Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Transitional Kindergarten Morning	150	Students	4.05	607	1.91	55	45	158	129	287	1.73	50	50	130	130	260
Transitional Kindergarten Afternoon	150	Students	4.05	607	0.00	50	50	0	0	0	1.73	50	50	130	130	260
Total Project Trips				**1,214**				**158**	**129**	**287**				**260**	**260**	**520**

Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, the existing roadway network, engineering judgment, data provided by the District, knowledge of the study area, existing residential densities and the City of Los Banos *General Plan 2042* Circulation Element in the vicinity of the Project site. Figure 4 illustrates the Project Only Trips at the study intersections.

Bikeways

Bikeways exist adjacent to and in the vicinity of the Project site. Adjacent to the Project site, a Class II Bikeway exists along B Street. In the vicinity of the Project site, Class II Bikeways exist along B Street and Miller Lane. The City of Los Banos *Bicycle-Pedestrian Plan* has planned Bikeways in the vicinity of the Project site. A Class I Bikeway is planned along Place Road; however, the City planning documents do not provide sufficient data to determine on what side of place road the Class 1 facility will need to be on. In the vicinity of the Project site, Bikeways are planned along Mercey Springs Road, Place Road and San Luis Street. Therefore, it is recommended that the Project coordinates with the City of Los Banos to determine the proper location of the Class 1 trail.

Walkways

Walkways exist adjacent to and in the vicinity of the Project site. Adjacent to the Project site, Walkways exist along B Street and Place Road. In the vicinity of the Project site, Walkways exist along Mercey Springs Road, Pacheco Boulevard, Miller Lane, Place Road, Las Palmas Street, B Street and San Luis Street. The City of Los Banos *Bicycle-Pedestrian Plan* has planned Walkways in the vicinity of the Project site. In the vicinity of the Project site, Walkways are planned along portion of the south side of San Luis Street between Mercey Springs Road and Manchester Drive.

Transit

The Bus, Merced's Regional Transit System, is the single public transportation provider for all of Merced County. At present, the Los Banos Commuter is the only route that has a stop in the vicinity of the proposed Project site. The Los Banos Commuter runs along Pacheco Boulevard and operates at 2-hour intervals during the week and 3-hour intervals on the weekends. On weekdays the route operates from 6:00 AM to 9:00 PM and on weekends the route operates from 8:00 AM to 9:00 PM. The nearest stop on this route to the proposed Project site is located adjacent to the Dollar Tree on the northwest quadrant of Ward Road and Pacheco Boulevard. This route provides a direct connection to the Walmart in Los Banos, San Luis Plaza, Memorial Hospital, Los Banos Fairgrounds, Los Banos Community Center, Dos Palos, El Nido Market and the Merced Transportation Center. It is worth noting that retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Existing plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, the intersections of Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to satisfy Warrant 3 during one or both peak periods. Based on the traffic signal warrants, operational analysis and engineering judgment, it is recommended that the City consider implementing traffic signal controls at the unsignalized intersections of Las Palmas Street/Main Access at B Street and Mercey Springs Road at San Luis Street.

Roadway Network

The Existing plus Project Traffic Conditions scenario assumes that the Existing scenario's roadway geometrics and traffic controls will remain in place except for the addition of the Project and its driveways. Figure 5 illustrates the assumed intersection geometrics and traffic controls for the study intersections under this scenario.

Results of Existing plus Project Level of Service Analysis

Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix F. Table V presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. As a result, the following improvements are recommended to improve the LOS at these intersections.

- Mercey Springs Road / B Street
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Modify the existing traffic signal to accommodate the additional lanes.
- Las Palmas Street / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.
- Mercey Springs Road / San Luis Street
  - Signalize the intersection with protected left-turn phasing in the southbound direction.

- Miller Lane / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane; and
  - Modify the westbound left-through-right lane to a through-right lane.
- Place Road / San Luis Street
  - Add a southbound left-turn lane; and
  - Modify the southbound left-right lane to a right-turn lane.

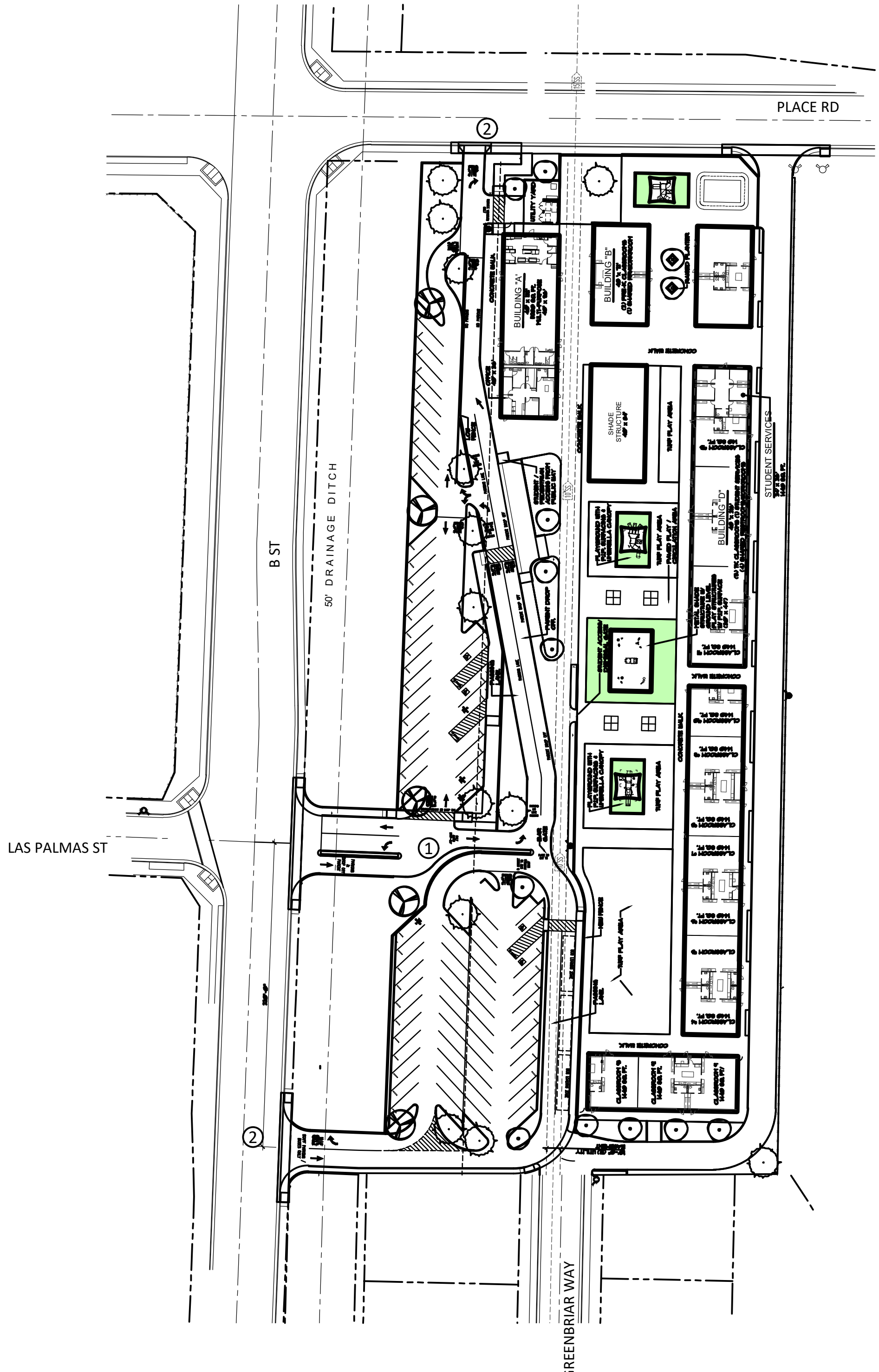
Table V: Existing plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		MD (11 - 1) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Mercey Springs Road / B Street	Traffic Signal	**65.6**	**E**	28.6	C
		Traffic Signal (Improved)	33.9	C	19.9	B
2	Las Palmas Street / B Street	Two-Way Stop	**60.9**	**F**	16.2	C
		Traffic Signal (Improved)	14.8	B	13.8	B
3	Place Road / B Street	Traffic Signal	25.3	C	13.9	B
4	Place Road / Project Driveway	One-Way Stop	11.7	B	10.0	B
5	Mercey Springs Road / San Luis Street	One-Way Stop	**>120.0**	**F**	**38.2**	**E**
		Traffic Signal (Improved)	23.8	C	12.2	B
6	Miller Lane / San Luis Street	All-Way Stop	**97.4**	**F**	10.1	B
		All-Way Stop (Improved)	27.4	D	9.5	A
7	Place Road / San Luis Street	One-Way Stop	**68.4**	**F**	14.6	B
		One-Way Stop (Improved)	23.5	C	11.9	B
8	Miller Lane / Pacheco Boulevard	Traffic Signal	21.2	C	21.0	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Project Site Map

Figure 3



NOTES:

1. SMOOTH OUT REVERSE CURVES TO BE LESS ABRUPT.
2. USE RAISED MEDIANS AND SIGNAGE TO LIMIT ACCESS.

Not To Scale

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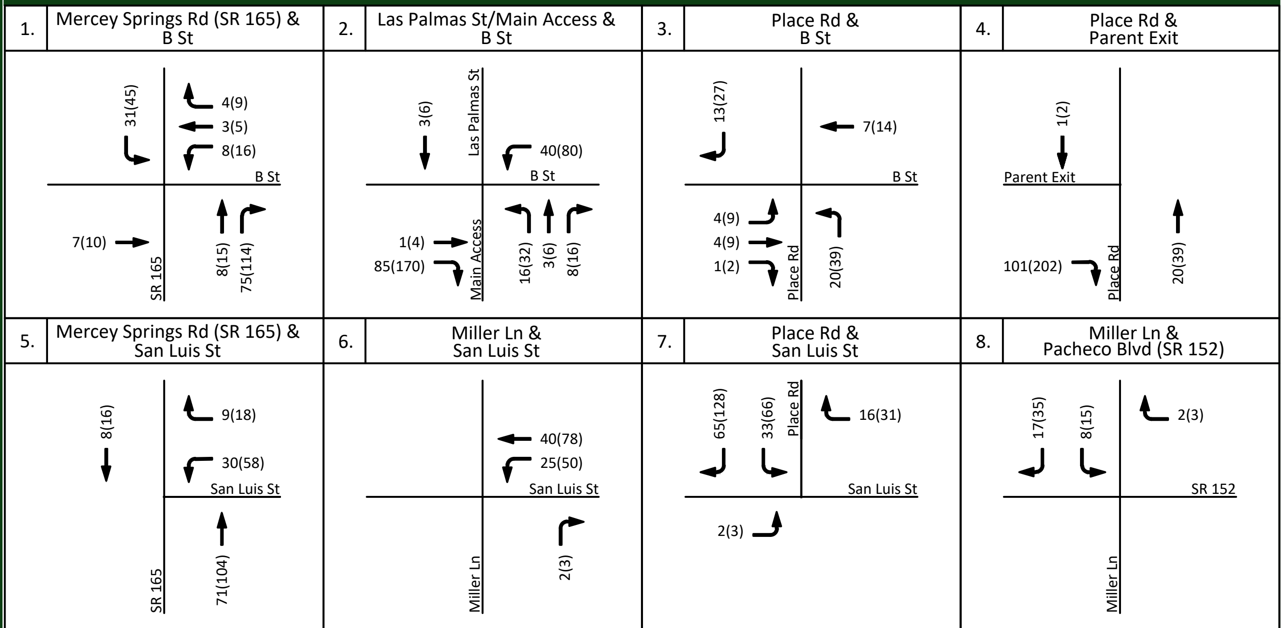
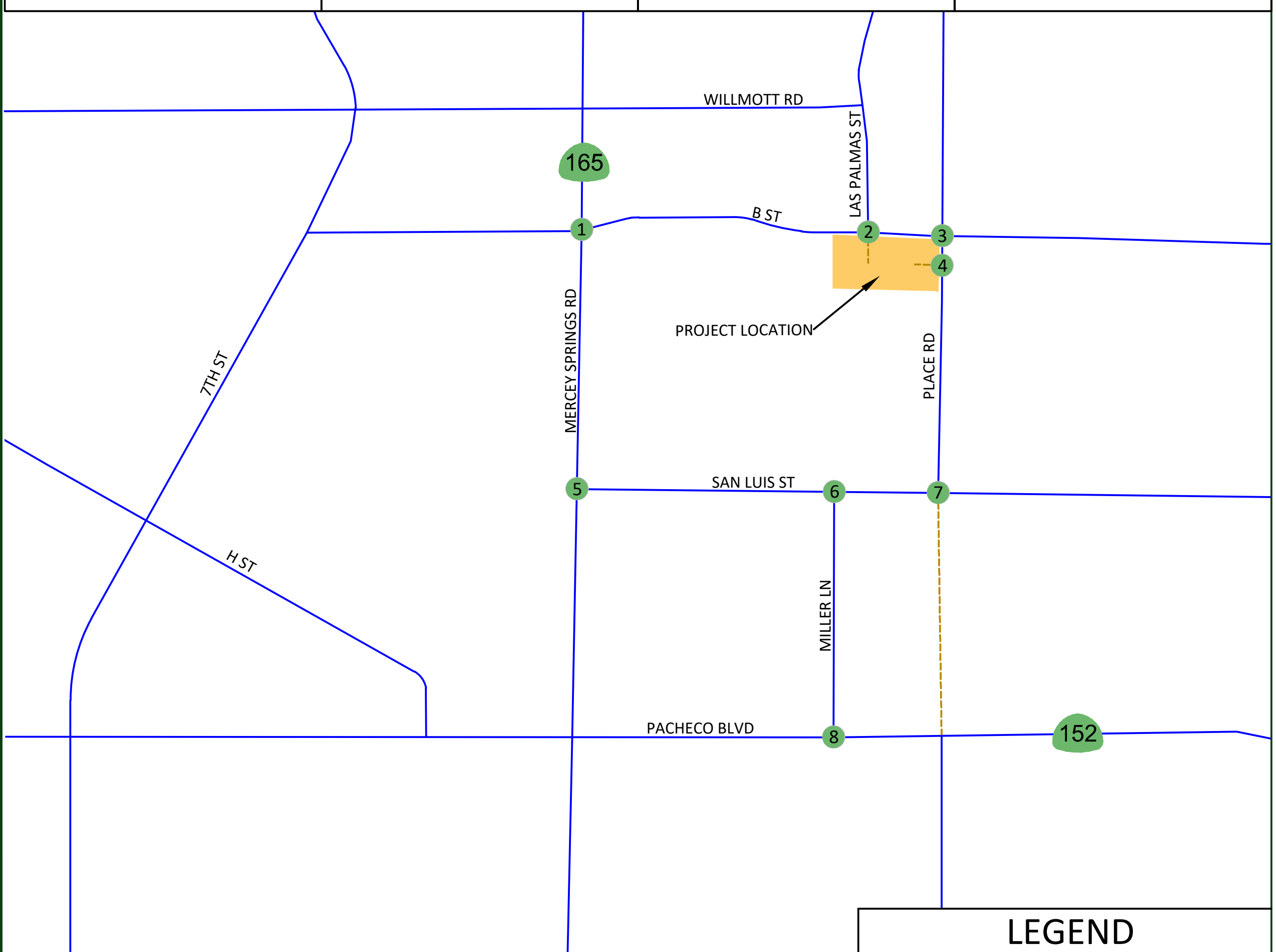
Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Figure 4

Project Only Trips





LEGEND

- (#) = STUDY INTERSECTION
- - - - = FUTURE ROADWAY
- XX = AM PROJECT ONLY TRIPS
- (XX) = MD PROJECT ONLY TRIPS

Not To Scale

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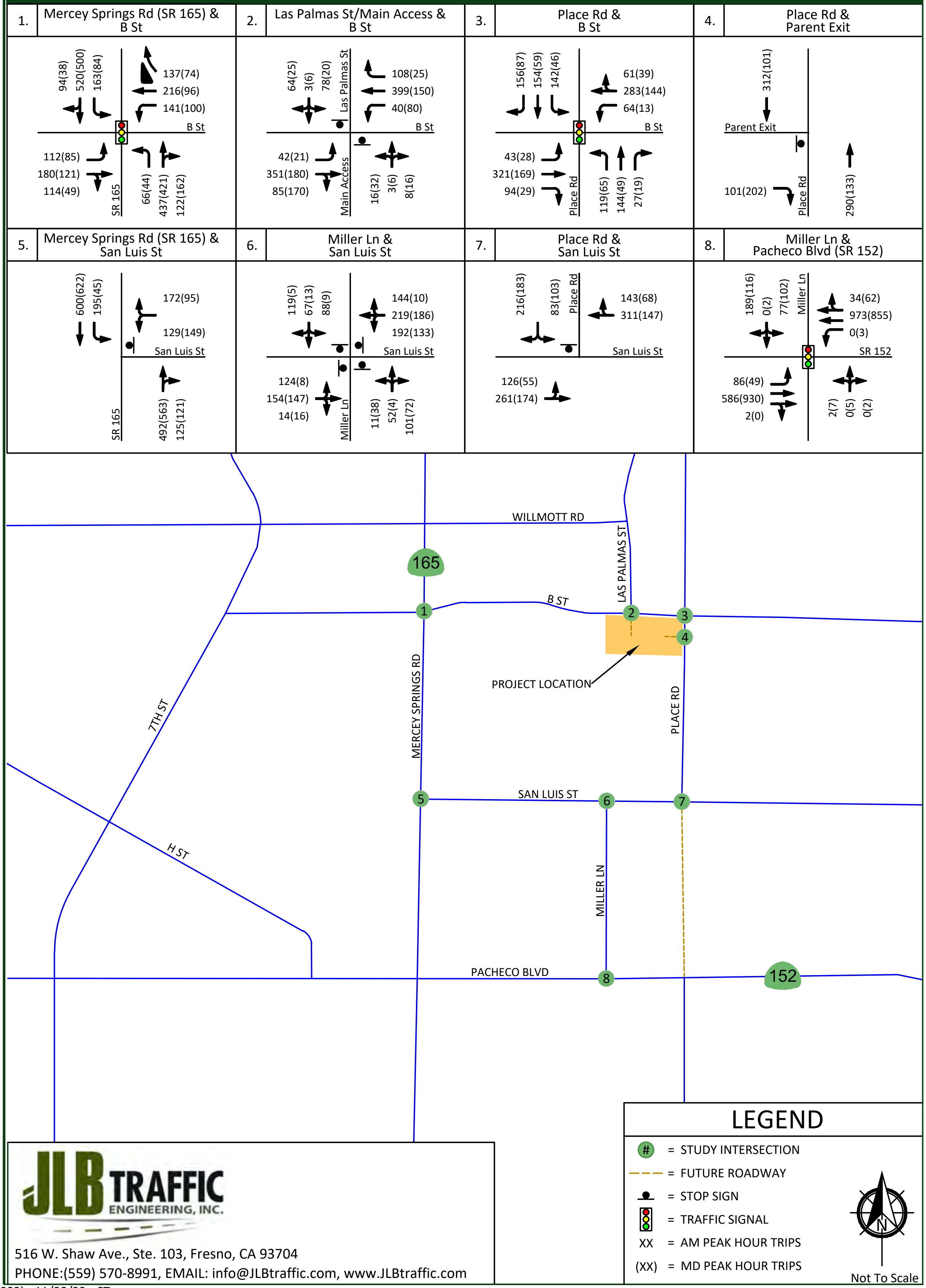
Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Existing plus Project - Traffic Volumes, Geometrics and Controls

Figure 5



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Near Term plus Project Traffic Conditions

Description of Near Term Projects

Near Term Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Los Banos staff were consulted throughout the preparation of this TIA regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table VI were within proximity of the Project site.

Table VI: Near Term Projects' Trip Generation

Near Term Project ID	*Near Term Project Name*	*Daily Trips*	*AM Peak Hour*	*MD Peak Hour*
A	Bearden Plaza[2]	1,979	158	254
B	Camarena Legacy[3]	3,796	257	304
C	Commercial Development (NWQ Ward at Pacheco)[1]	3,463	129	298
D	Mercey Spring Road Apartments[2]	703	44	30
E	Mixed Use (NWC Place at Pacheco)[1]	5,032	329	380
F	Northpointe Residential[1]	5,334	323	283
G	Presidential Estates East Area Plan[2]	6,249	482	415
H	Residential Development (NEC Mercey Springs at Willmott)[1]	858	64	49
I	Stonefield Residential[1]	3,697	274	211
J	Sunrise Ranch Subdivision[2]	419	33	24
K	The Villas[1]	2,207	164	126
Total Near Term Project Trips		**33,737**	**2,257**	**2,374**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on Traffic Impact Analysis Report prepared by another traffic engineering firm
3 = Trip Generation based on a Traffic Impact Analysis Report prepared by JLB Traffic Engineering, Inc.

The trip generation listed in Table VI is that which is anticipated to be added to the streets and highways by Near Term Projects between the time of the preparation of this Report and approximately five (5) years after buildout of the proposed Project. As shown in Table VI, the total trip generation for the Near Term Projects is 33,737 weekday daily trips, 2,257 weekday AM peak hour trips and 2,374 weekday MD peak hour trips. Figure 6 illustrates the location of the Near Term Projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street satisfy Warrant 3 during one or both peak periods. Based on the traffic signal warrants, operational analysis and engineering judgment, it is recommended that the City consider implementing traffic signal controls at the unsignalized intersections of Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street.

Roadway Network

The Near Term plus Project Traffic Conditions scenario assumes that the Existing plus Project scenario's roadway geometrics and traffic controls will remain in place except for Place Road extending south of San Luis Street to Pacheco Boulevard. Adjustments were made to Baseline Volumes to reroute through Place Road instead of utilizing surrounding roads such as Miller Lane. Figure 7 illustrates the Near Term Year Project Only Trips as a result of the changes in the roadway network in this scenario. Figure 8 illustrates the assumed intersection geometrics and traffic controls for the study intersections under this scenario.

Results of Near Term plus Project Level of Service Analysis

Figure 8 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix G. Table VII presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. As a result, the following improvements are recommended to improve the LOS at these intersections.

- Mercey Springs Road / B Street
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Modify the existing traffic signal to accommodate the additional lanes.
- Las Palmas Street / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.
- Mercey Springs Road / San Luis Street
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Signalize the intersection with protected left-turn phasing in the southbound direction.

- Place Road / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right turn lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right turn lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.

Table VII: Near Term plus Project Intersection LOS Results

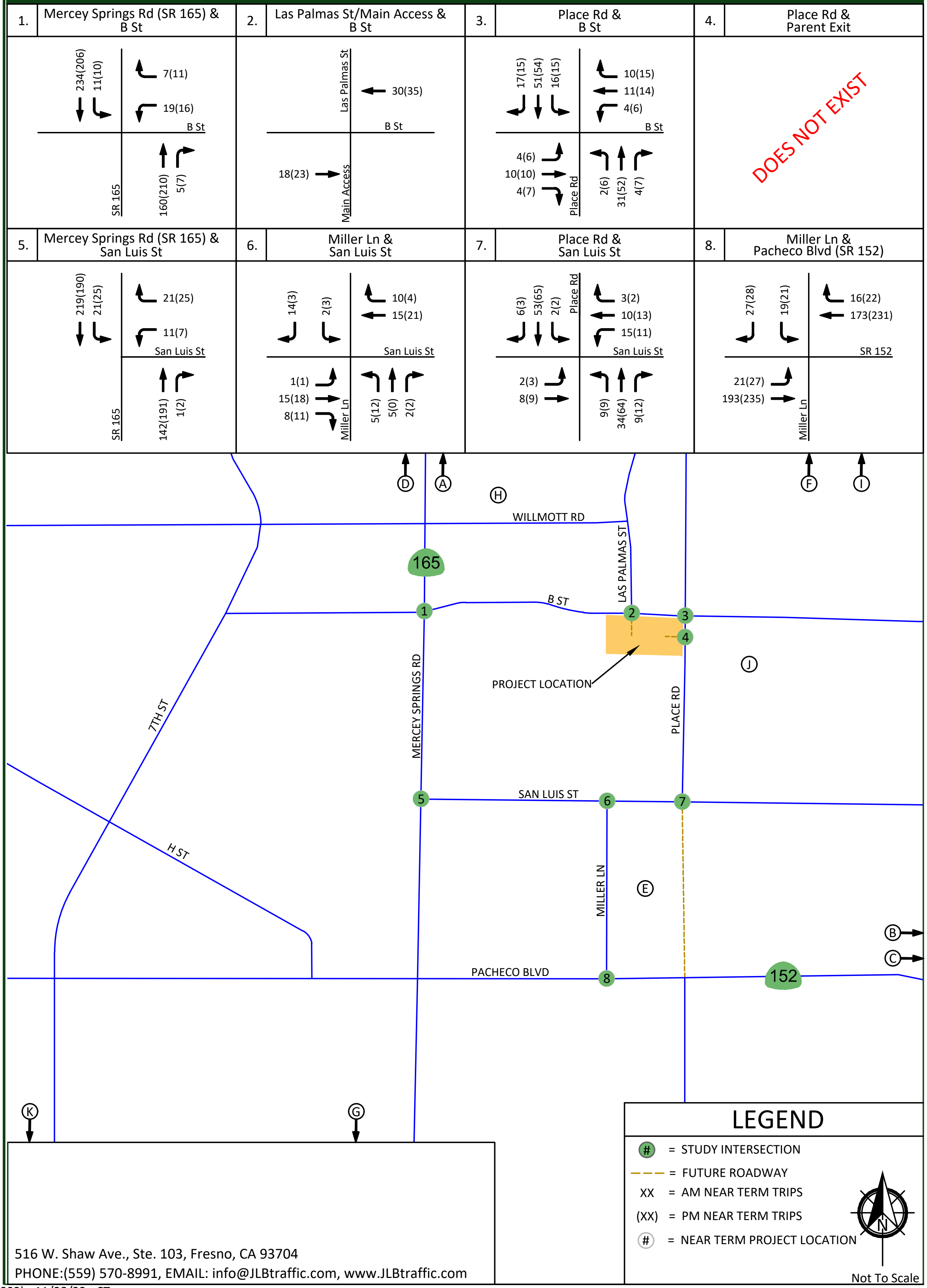
ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*MD (11 - 1) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Mercey Springs Road / B Street	Traffic Signal	**88.4**	**F**	37.8	D
		Traffic Signal (Improved)	43.4	D	21.7	C
2	Las Palmas Street / B Street	Two-Way Stop	**76.0**	**F**	17.4	C
		Traffic Signal (Improved)	13.4	B	12.4	B
3	Place Road / B Street	Traffic Signal	27.3	C	14.6	B
4	Place Road / Project Driveway	One-Way Stop	12.7	B	10.6	B
5	Mercey Springs Road / San Luis Street	One-Way Stop	**>120.0**	**F**	**75.2**	**F**
		Traffic Signal (Improved)	15.9	B	9.7	A
6	Miller Lane / San Luis Street	All-Way Stop	34.2	D	9.1	A
7	Place Road / San Luis Street	Two-Way Stop	**>120.0**	**F**	**35.8**	**E**
		Traffic Signal (Improved)	30.6	C	14.9	B
8	Miller Lane / Pacheco Boulevard	Traffic Signal	22.0	C	22.8	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Near Term Projects' Trip Assignment

Figure 6



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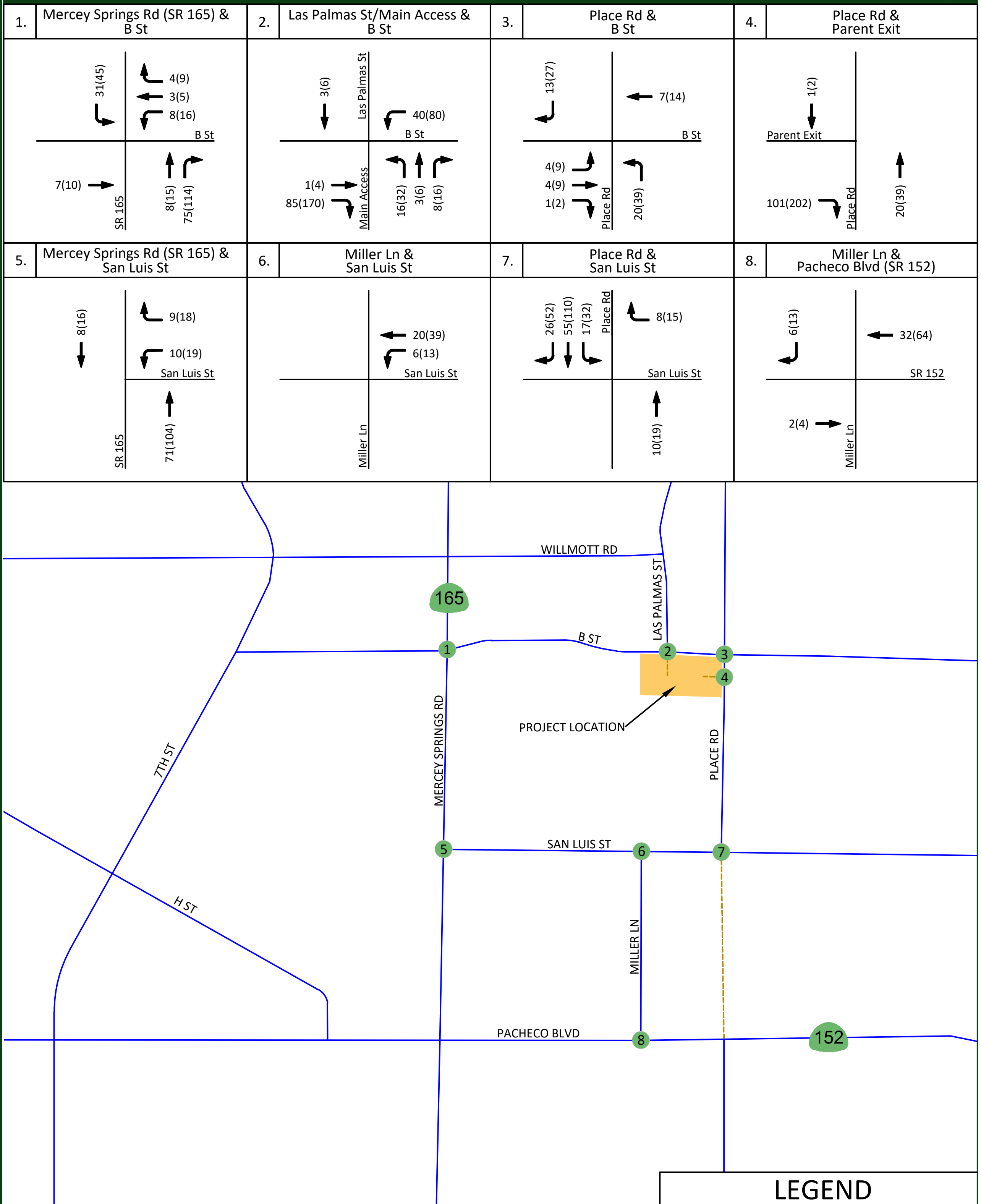
Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Near Term Year Project Only Trips

Figure 7



LEGEND

- (#) = STUDY INTERSECTION
- - - - = FUTURE ROADWAY
- XX = AM PROJECT ONLY TRIPS
- (XX) = MD PROJECT ONLY TRIPS

N

Not To Scale

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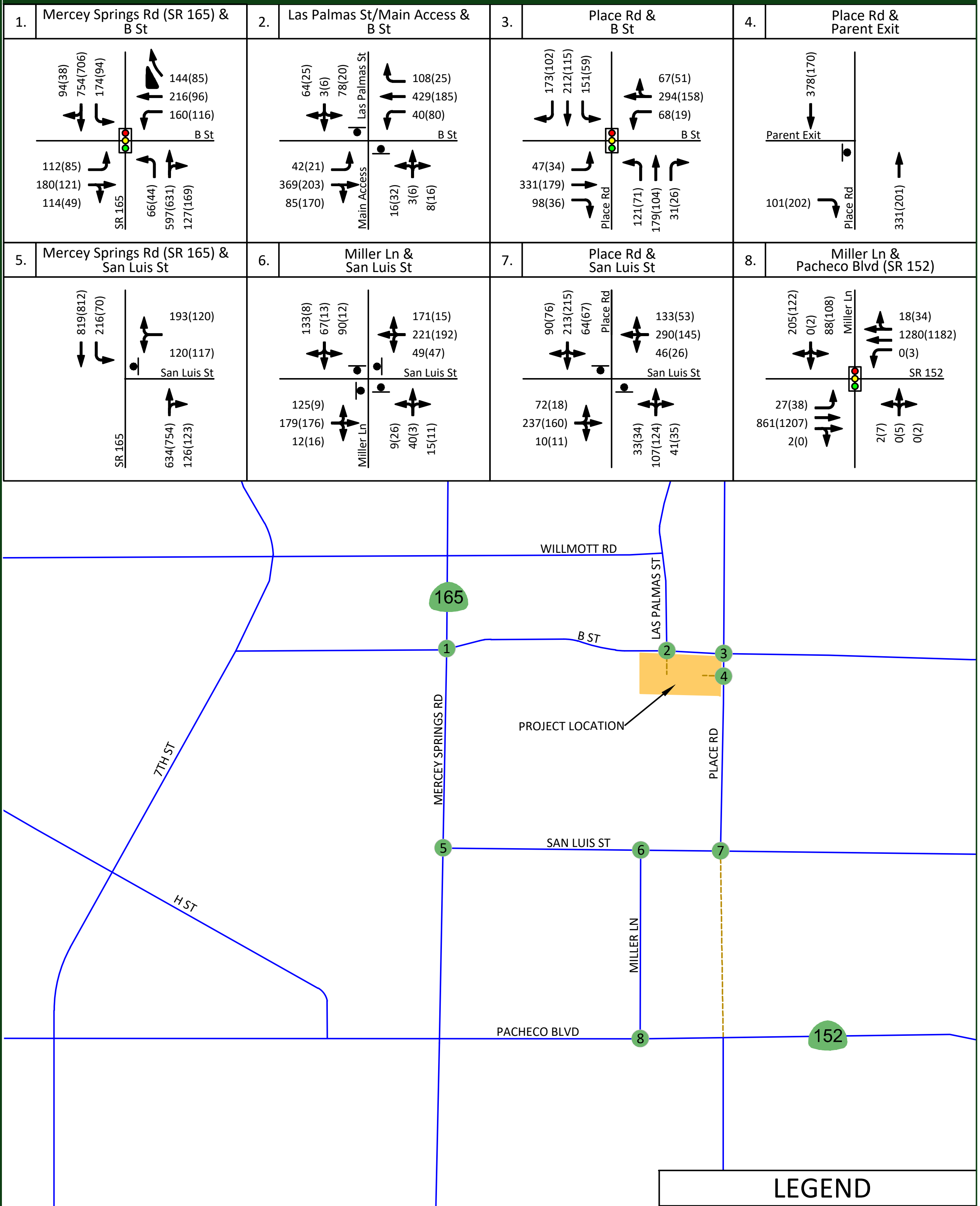
Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Figure 8

Near Term plus Project - Traffic Volumes, Geometrics and Controls



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LEGEND

- (#) = STUDY INTERSECTION
- = FUTURE ROADWAY
- = STOP SIGN
- = TRAFFIC SIGNAL
- XX = AM PEAK HOUR TRIPS
- (XX) = MD PEAK HOUR TRIPS

N

Not To Scale

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Cumulative Year 2044 No Project Traffic Conditions

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Cumulative Year 2044 No Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, Las Palmas Street at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to satisfy Warrant 3 during one or both peak periods. Based on the traffic signal warrants, operational analysis and engineering judgment, it is recommended that the City consider implementing traffic signal controls at the unsignalized intersections of Mercey Springs Road at San Luis Street and Place Road at San Luis Street.

Roadway Network

The Cumulative Year 2044 No Project Traffic Conditions scenario assumes that the Existing scenario's roadway geometrics and traffic controls will remain in place except for Place Road extending south of San Luis Street to Pacheco Boulevard. Adjustments were made to Existing volumes to reroute through Place Road instead of utilizing surrounding roads such as Miller Lane. It is important to note that this TIA does not assume that the State Route 152 Los Banos Bypass Plan takes place. If the SR 152 Los Banos Bypass Plan does take place, traffic volumes along State Route 152 would be significantly lower and the majority of the truck traffic would be diverted to the Bypass. Figure 9 illustrates the assumed intersection geometrics and traffic controls for the study intersections under this scenario.

Results of Cumulative Year 2044 No Project Level of Service Analysis

Figure 9 illustrates the Cumulative Year 2044 No Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2044 No Project Traffic Conditions scenario are provided in Appendix H. Table VIII presents a summary of the Cumulative Year 2044 No Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. As a result, the following improvements are recommended to improve the LOS at these intersections.

- Mercey Springs Road / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Modify the existing traffic signal to accommodate the additional lanes.
- Las Palmas Street / B Street
  - Signalize the intersection with protected left-turn phasing.

- Mercey Springs Road / San Luis Street
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Signalize the intersection with protected left-turn phasing in the southbound direction.
- Place Road / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right turn lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right turn lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.

Table VIII: Cumulative Year 2044 No Project Intersection LOS Results

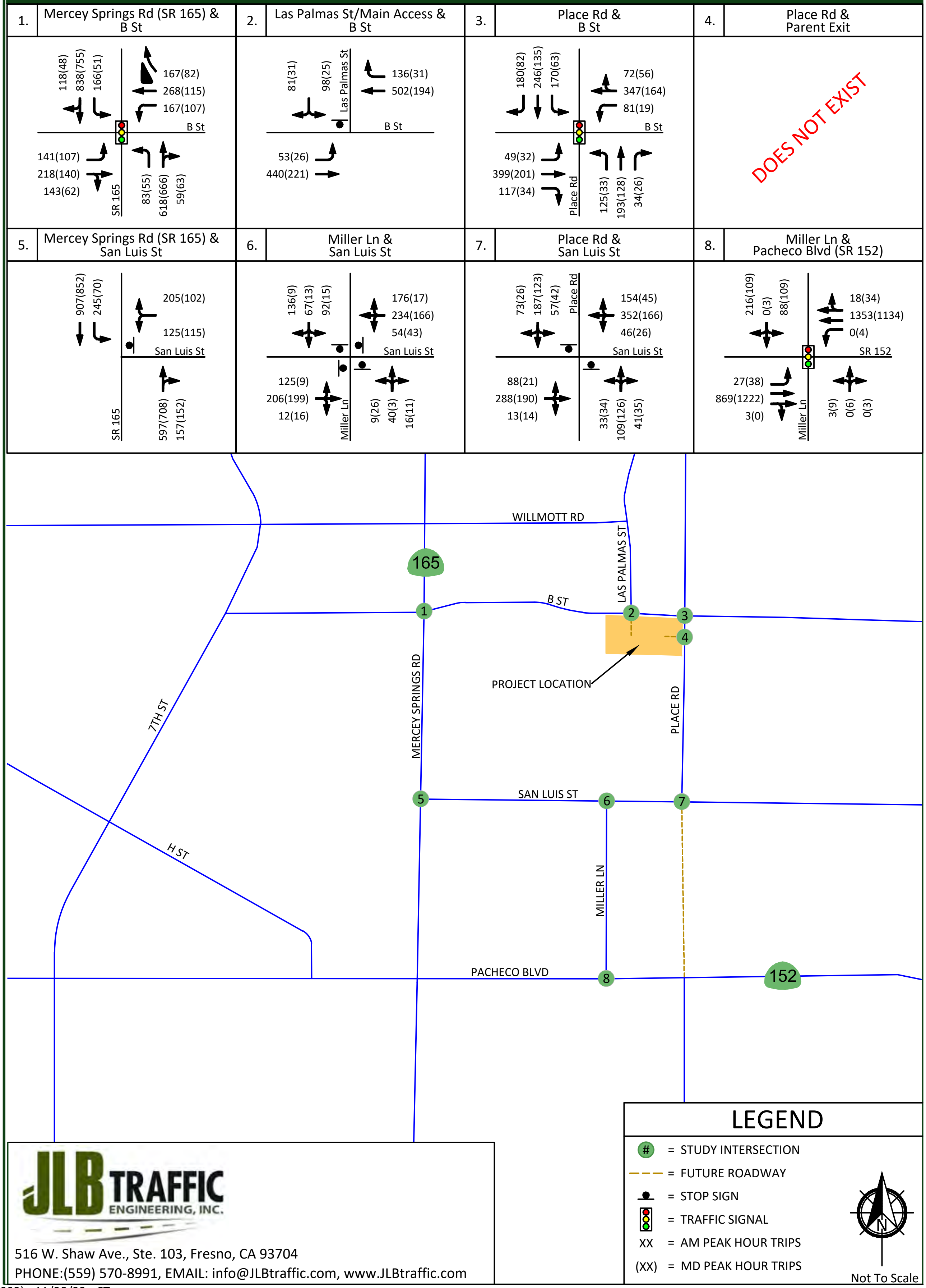
ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		MD (11 - 1) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Mercey Springs Road / B Street	Traffic Signal	**116.9**	**F**	37.0	D
		Traffic Signal (Improved)	46.0	D	20.5	C
2	Las Palmas Street / B Street	One-Way Stop	**66.5**	**F**	11.1	B
		Traffic Signal (Improved)	10.0	A	6.5	A
3	Place Road / B Street	Traffic Signal	26.6	C	14.2	B
4	Place Road / Project Driveway	Does Not Exist	-	-	-	-
5	Mercey Springs Road / San Luis Street	One-Way Stop	**>120.0**	**F**	**64.2**	**F**
		Traffic Signal (Improved)	17.9	B	9.2	A
6	Miller Lane / San Luis Street	All-Way Stop	31.5	D	9.0	A
7	Place Road / San Luis Street	Two-Way Stop	**>120.0**	**F**	21.6	C
		Traffic Signal (Improved)	23.1	C	14.8	B
8	Miller Lane / Pacheco Boulevard	Traffic Signal	29.8	C	22.4	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos

Cumulative Year 2044 No Project - Traffic Volumes, Geometrics and Controls

Figure 9



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Cumulative Year 2044 plus Project Traffic Conditions

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Cumulative Year 2044 plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street satisfy Warrant 3 during one or both peak periods. Based on the traffic signal warrants, operational analysis and engineering judgment, it is recommended that the City consider implementing traffic signal controls at the unsignalized intersections of Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street.

Roadway Network

The Cumulative Year 2044 plus Project Traffic Conditions scenario assumes that the Near Term plus Project scenario's roadway geometrics and traffic controls will remain in place. Figure 10 illustrates the assumed intersection geometrics and traffic controls for the study intersections under this scenario.

Results of Cumulative Year 2044 plus Project Level of Service Analysis

Figure 10 illustrates the Cumulative Year 2044 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2044 plus Project Traffic Conditions scenario are provided in Appendix I. Table IX presents a summary of the Cumulative Year 2044 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. As a result, the following improvements are recommended to improve the LOS at these intersections.

- Mercey Springs Road / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Modify the existing traffic signal to accommodate the additional lanes.
- Las Palmas Street / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.

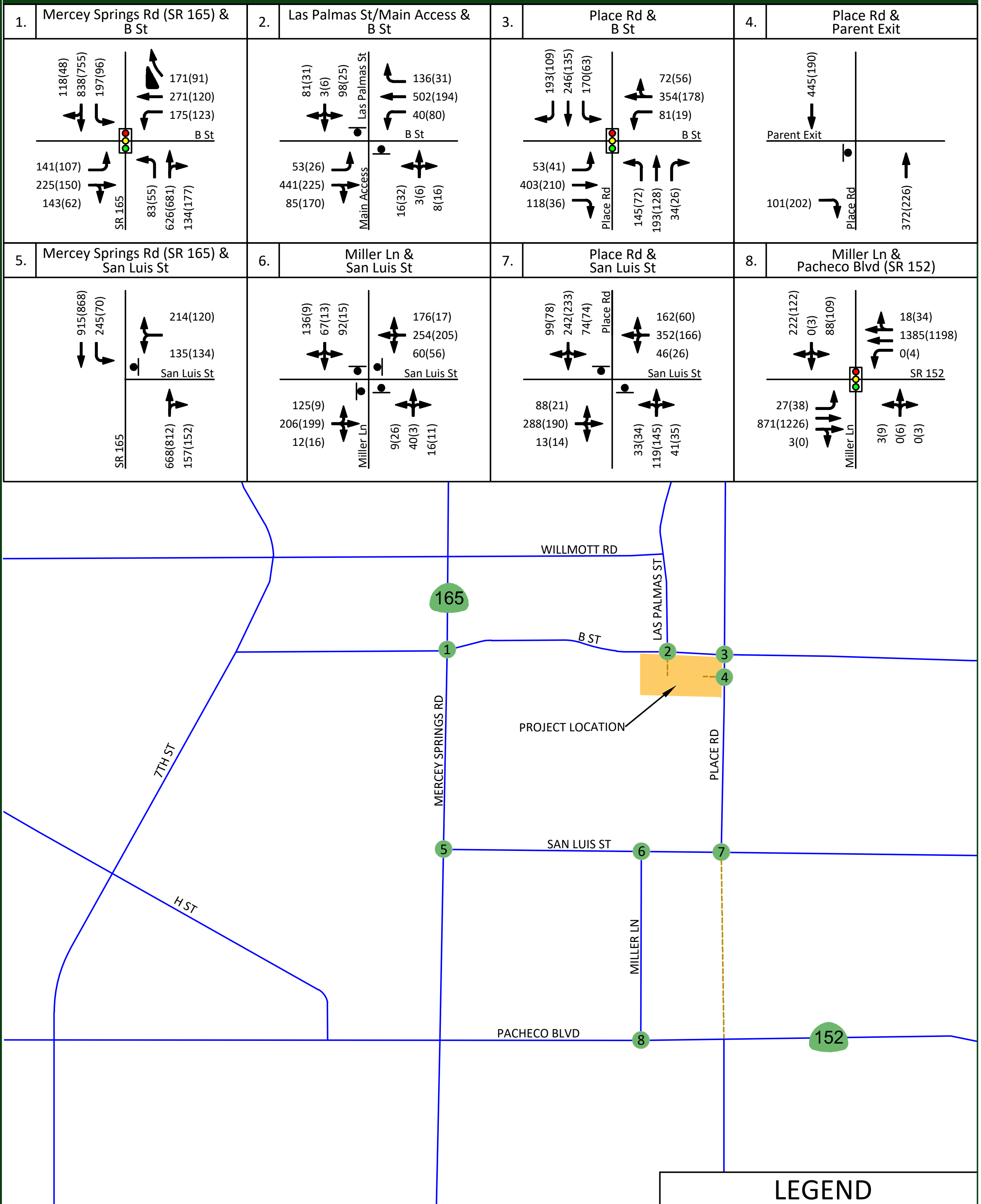
- Mercey Springs Road / San Luis Street
  - Add a second northbound through lane with a receiving lane on the north leg;
  - Add a second southbound through lane with a receiving lane on the south leg; and
  - Signalize the intersection with protected left-turn phasing in the southbound direction.
- Miller Lane / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane; and
  - Modify the westbound left-through-right lane to a through-right lane.
- Place Road / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right turn lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right turn lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.

Table IX: Cumulative Year 2044 plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*MD (11 - 1) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Mercey Springs Road / B Street	Traffic Signal	**>120.0**	**F**	49.7	D
		Traffic Signal (Improved)	49.7	D	22.5	C
2	Las Palmas Street / B Street	Two-Way Stop	**>120.0**	**F**	18.7	C
		Traffic Signal (Improved)	17.6	B	12.6	B
3	Place Road / B Street	Traffic Signal	28.6	C	15.2	B
4	Place Road / Project Driveway	One-Way Stop	13.2	B	10.8	B
5	Mercey Springs Road / San Luis Street	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		Traffic Signal (Improved)	20.0	B	10.7	B
6	Miller Lane / San Luis Street	All-Way Stop	**38.1**	**E**	9.4	A
		All-Way Stop (Improved)	26.9	D	9.5	A
7	Place Road / San Luis Street	Two-Way Stop	**>120.0**	**F**	**68.3**	**F**
		Traffic Signal (Improved)	28.2	C	15.6	B
8	Miller Lane / Pacheco Boulevard	Traffic Signal	30.1	C	23.0	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Figure 10
Cumulative Year 2044 plus Project - Traffic Volumes, Geometrics and Controls



LEGEND

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- = STOP SIGN
- = TRAFFIC SIGNAL
- XX = AM PEAK HOUR TRIPS
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Not To Scale

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Queuing Analysis

Table X provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix C contains the methodologies used to evaluate these intersections. Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the Synchro manual, “the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes” (*Synchro Studio 10 User Guide* 2017). The queues shown in Table X are the 95th percentile queue lengths for the respective lane movements.

The *California Highway Design Manual* (CA HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are “usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane” (Caltrans 2019). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table X.

The storage capacity for the Cumulative Year 2044 plus Project Traffic Conditions shall be based on the SimTraffic output files and engineering judgment. The values in bold presented in Table X are the projected queue lengths that will likely need to be accommodated by the Cumulative Year 2044 plus Project Traffic Conditions scenario. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

Table X: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2044 No Project		Cumulative Year 2044 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Mercey Springs Road (SR 165) / B Street	Eastbound Left	50	137	118	115	102	109	112	215	123	**263**	122
		Eastbound Through	*	*	*	*	*	*	*	197	124	207	121
		Eastbound Through-Right	>500	297	137	239	132	306	138	*	*	*	*
		Eastbound Right	*	*	*	*	*	*	*	96	58	**108**	64
		Westbound Left	55	134	95	128	94	143	115	144	101	**146**	116
		Westbound Through	>500	233	92	200	110	334	115	467	120	289	214
		Westbound Right	120	75	0	75	53	212	0	**253**	0	140	112
		Northbound Left	160	184	100	102	50	126	81	87	102	133	110
		Northbound Through	*	*	*	169	144	225	230	189	180	244	224
		Northbound Through-Right	>500	288	245	172	196	233	270	221	189	268	242
		Southbound Left	300	261	163	193	150	197	109	201	70	242	139
		Southbound Through	*	*	*	279	245	245	214	314	206	321	220
		Southbound Through-Right	>500	579	348	255	186	239	205	305	207	308	217
2	Las Palmas St / Main Access / B Street	Eastbound Left	150	45	17	56	61	59	39	60	57	66	64
		Eastbound Through	>500	0	0	199	105	191	85	124	64	201	108
		Eastbound Right	*	*	*	53	61	**89**	72	*	*	54	72
		Westbound Left	*	*	*	68	73	58	75	*	*	**98**	80
		Westbound Through	>500	0	0	191	114	243	89	184	69	289	93
		Westbound Right	50	0	10	62	40	88	28	96	23	**167**	35
		Northbound Left	*	*	*	39	45	33	47	*	*	36	**51**
		Northbound Through-Right	*	*	*	22	27	24	30	*	*	20	26
		Southbound Left	*	*	*	78	41	60	28	*	*	**83**	48
		Southbound Left-Right	>500	63	60	*	*	*	*	126	51	*	*
		Southbound Through-Right	*	*	*	44	21	59	41	*	*	44	35
3	Place Road / B Street	Eastbound Left	160	57	46	56	52	117	41	158	40	**169**	59
		Eastbound Through	>500	156	73	197	89	233	101	320	95	314	121
		Eastbound Right	160	48	25	60	15	55	27	134	35	156	42
		Westbound Left	115	68	19	136	28	127	38	**174**	75	164	38
		Westbound Through-Right	>500	174	92	218	76	228	94	280	127	299	130
		Northbound Left	160	92	41	159	96	118	58	151	45	138	68
		Northbound Through	>500	75	61	156	49	174	80	156	95	172	98
		Northbound Right	160	38	31	43	18	36	38	40	26	30	35
		Southbound Left	165	123	60	145	55	172	72	**193**	67	147	95
		Southbound Through	>500	123	49	148	51	218	85	197	96	177	119
		Southbound Right	165	79	53	81	60	91	68	108	64	120	68

Note: * = Does not exist or is not projected to exist

Table X: Queuing Analysis (continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2044 No Project		Cumulative Year 2044 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4	Place Road / Parent Exit	Eastbound Right	*	*	*	59	78	71	83	*	*	62	**90**
		Northbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Southbound Through	>500	0	0	0	0	0	0	0	0	0	0
5	Mercey Springs Road (SR 165) / San Luis Street	Westbound Left-Right	>500	151	110	174	179	201	121	205	121	266	156
		Northbound Through	*	*	*	*	*	180	152	202	144	210	202
		Northbound Through-Right	>500	334	277	326	288	167	155	180	152	218	224
		Southbound Left	100	182	128	196	131	164	102	230	77	**217**	92
		Southbound Through	>500	219	232	251	355	164	128	175	144	253	161
		Southbound Through	*	*	*	*	*	170	156	167	157	236	169
6	Miller Lane / San Luis Street	Eastbound Left	*	73	24	60	18	*	*	*	*	**68**	33
		Eastbound Left-Through-Right	>500	*	*	*	*	116	75	135	71	*	*
		Eastbound Through-Right	*	71	58	87	72	*	*	*	*	97	70
		Westbound Left	*	67	55	73	57	*	*	*	*	**56**	48
		Westbound Left-Through-Right	>500	*	*	*	*	193	66	215	78	*	*
		Westbound Through-Right	*	81	59	104	74	*	*	*	*	156	85
		Northbound Left-Through-Right	>500	96	71	95	76	56	47	47	46	54	52
		Southbound Left-Through-Right	>500	101	41	91	46	149	44	121	44	139	51
7	Place Road / San Luis Street	Eastbound Left	*	*	*	*	*	114	44	**129**	47	114	40
		Eastbound Left-Through	>500	88	35	122	50	*	*	*	*	*	*
		Eastbound Through-Right	*	*	*	*	*	152	104	153	83	159	113
		Westbound Left	*	*	*	*	*	73	55	67	50	**96**	47
		Westbound Through-Right	>500	18	7	33	7	305	91	278	110	314	149
		Northbound Left	*	*	*	*	*	69	49	56	56	**73**	55
		Northbound Through-Right	*	*	*	*	*	103	87	143	88	104	126
		Southbound Left	*	*	*	75	67	81	75	91	59	**109**	82
		Southbound Left-Right	>500	122	53	*	*	*	*	*	*	*	*
		Southbound Through-Right	*	*	*	*	*	181	129	177	100	208	174
		Southbound Right	*	*	*	83	78	*	*	*	*	*	*
8	Miller Lane / Pacheco Boulevard (SR152)	Eastbound Left	125	107	97	132	101	51	97	77	103	62	124
		Eastbound Through	>500	133	128	198	134	172	305	256	303	228	339
		Eastbound Through-Right	>500	126	127	168	144	165	286	253	291	204	294
		Westbound Left	185	0	12	0	17	0	17	0	11	0	13
		Westbound Through	>500	231	169	259	187	316	322	362	370	503	312
		Westbound Through-Right	>500	251	190	288	222	339	352	354	376	515	331
		Northbound Left-Through-Right	>500	15	52	19	49	20	44	21	44	23	52
		Southbound Left-Through-Right	>500	266	168	197	250	252	226	263	220	460	284

Note: * = Does not exist or is not projected to exist

Project's Pro-Rata Fair Share of Future Transportation Improvements

The Project's fair share percentage impact to study intersections projected to fall below their LOS threshold and which are not covered by an existing impact fee program is provided in Table XI. The Project's fair share percentage impacts were calculated pursuant to the Caltrans' *Guide for the Preparation of Traffic Impact Studies*. The Project's pro-rata fair shares were calculated utilizing the Project Only Trips and Cumulative Year 2046 plus Project volumes. Since the critical peak period for the study facilities was determined to be during the AM peak, the AM peak volumes are utilized to determine the Project's pro-rata fair share.

This area of Los Banos has existing queuing and level of service issues. As such, with or without the Project, improvements should be made to maintain an acceptable LOS during the peak periods and to improve traffic safety. Furthermore, the amount of improvements that would be needed are projected to be the same under the Cumulative Year 2044 No Project and Cumulative Year 2044 plus Project traffic conditions scenarios. Therefore, the appropriate fair share for the project would be the project traffic divided by the total Cumulative Year 2044 plus Project traffic conditions scenario volumes.

It is recommended that the Project contribute its equitable fair share as listed in Table XI for the future improvements necessary to maintain an acceptable LOS. However, fair share contributions should only be made for those facilities or portion thereof currently not funded by the responsible agencies roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share in addition to the local and regional impact fee programs would satisfy the Project's traffic improvement measures. However, the Project driveway improvements are the sole responsibility of the Project proponent.

This study does not provide construction costs for the recommended improvement measures. Therefore, if the recommended improvement measures are implemented, it is recommended that the District work with Caltrans and the City of Los Banos, as appropriate, to develop the estimated construction cost(s).

Table XI: Project's Fair Share of Future Roadway Improvements

ID	*Intersection*	*Cumulative Year 2044 plus Project Traffic Volumes (AM Peak)*	*Project Only Trips (AM Peak)*	*Project's Fair Share (%)*
1	Mercey Springs Road / B Street	3,122	136	4.36
5	Mercey Springs Road / San Luis Street	2,334	98	4.20
6	Miller Lane / San Luis Street	1,193	26	2.18
7	Place Road / San Luis Street	1,024	116	7.45

Note: Project Fair Share = ((Project Only Trips) / (Cumulative Year 2044 + Project Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing Traffic Conditions

- JLB conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to obtain collision reports for the most recent three-year period. Based on a review of the collision reports, a total of 16 collisions were reported within the influence zone of the study intersections. No study intersection averaged over five (5) preventable collisions per year. After a thorough review of the data contained within the five-year collision analysis period, there are no recommendations to the study intersections due to the low number of yearly preventable collisions.
- At present, the study intersection of Mercey Springs Road at San Luis Street and Miller Lane at San Luis Street exceed their LOS threshold during the AM peak period. It is recommended that the following improvements be implemented to improve the LOS at these intersections.
  - Mercey Springs Road / San Luis Street
    - Signalize the intersection with protected left-turn phasing in the southbound direction.
  - Miller Lane / San Luis Street
    - Add an eastbound left-turn lane;
    - Modify the eastbound left-through-right lane to a through-right lane;
    - Add a westbound left-turn lane; and
    - Modify the westbound left-through-right lane to a through-right lane.

Existing plus Project Traffic Conditions

- The Project proposes two (2) access points along the south side of B Street and one (1) access point along the west side of Place Road.
- JLB analyzed the location of the existing and proposed roadways and access points. This review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway networks. However, it is recommended that raised medians and signage be used to limit the access to right-in right-out at the Employee access and the Parent Exit access and that the entrance curves be smoothed out to reduce the need to do an abrupt change in travel pattern.
- At buildout, the proposed Project is estimated to generate approximately 1,214 daily trips, 287 AM peak hour trips and 520 PM peak hour trips.
- Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. The following improvements are recommended to improve the LOS at these intersections:
  - Mercey Springs Road / B Street
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg; and
    - Modify the existing traffic signal to accommodate the additional lanes.

- Las Palmas Street / B Street
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protected left-turn phasing in all directions.
- Mercey Springs Road / San Luis Street
  - Signalize the intersection with protected left-turn phasing in the southbound direction.
- Miller Lane / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
- Place Road / San Luis Street
  - Add a southbound left-turn lane; and
  - Modify the southbound left-through-right lane to a through-right lane.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 33,737 weekday daily trips, 2,257 weekday AM peak hour trips and 2,374 weekday MD peak hour trips.
- Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. The following improvements are recommended to improve the LOS at these intersections:
  - Mercey Springs Road / B Street
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg; and
    - Modify the existing traffic signal to accommodate the additional lanes.
  - Las Palmas Street / B Street
    - Add an eastbound right-turn lane;
    - Modify the eastbound through-right lane to a through lane;
    - Add a northbound left-turn lane;
    - Modify the northbound left-through-right lane to a through-right lane;
    - Add a southbound left-turn lane;
    - Modify the southbound left-through-right lane to a through-right lane; and
    - Signalize the intersection with protected left-turn phasing in all directions.
  - Mercey Springs Road / San Luis Street
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg; and

- Signalize the intersection with protected left-turn phasing in the southbound direction.
- Place Road / San Luis Street
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through-right lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through-right lane to a through-right lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protective left-turn phasing in all directions.

Cumulative Year 2044 No Project Traffic Conditions

- Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. As a result, the following improvements are recommended to improve the LOS at these intersections***:***
  - Mercey Springs Road / B Street
    - Add an eastbound right-turn lane;
    - Modify the eastbound through-right lane to a through lane;
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg; and
    - Modify the existing traffic signal to accommodate the additional lanes.
  - Las Palmas Street / B Street
    - Signalize the intersection with protected left-turn phasing.
  - Mercey Springs Road / San Luis Street
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg;
    - Signalize the intersection with protected left-turn phasing in the southbound direction.
  - Place Road / San Luis Street
    - Add an eastbound left-turn lane;
    - Modify the eastbound left-through-right lane to a through-right lane;
    - Add a westbound left-turn lane;
    - Modify the westbound left-through-right lane to a through-right lane;
    - Add a northbound left-turn lane;
    - Modify the northbound left-through-right lane to a through-right lane;
    - Add a southbound left-turn lane;
    - Modify the southbound left-through-right lane to a through-right lane; and
    - Signalize the intersection with protective left-turn phasing in all directions.

Cumulative Year 2044 plus Project Traffic Conditions

- Under this scenario, the intersections of Mercey Springs Road at B Street, Las Palmas Street/Main Access at B Street, Mercey Springs Road at San Luis Street, Miller Lane at San Luis Street and Place Road at San Luis Street are projected to exceed their LOS threshold during one or both peak periods. It is recommended that the Project pay a pro-rata fair share toward a final improvement selected by the appropriate responsible agency. However, the Project driveway improvements are the sole responsibility of the Project proponent. The following improvements are recommended to improve the LOS at these intersections:
  - Mercey Springs Road / B Street
    - Add an eastbound right-turn lane;
    - Modify the eastbound through-right lane to a through lane;
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg; and
    - Modify the existing traffic signal to accommodate the additional lanes.
  - Las Palmas Street / B Street
    - Add an eastbound right-turn lane;
    - Modify the eastbound through-right lane to a through lane;
    - Add a northbound left-turn lane;
    - Modify the northbound left-through-right lane to a through-right lane;
    - Add a southbound left-turn lane;
    - Modify the southbound left-through-right lane to a through-right lane; and
    - Signalize the intersection with protected left-turn phasing in all directions.
  - Mercey Springs Road / San Luis Street
    - Add a second northbound through lane with a receiving lane on the north leg;
    - Add a second southbound through lane with a receiving lane on the south leg;
    - Signalize the intersection with protected left-turn phasing in the southbound direction.
  - Place Road / San Luis Street
    - Add an eastbound left-turn lane;
    - Modify the eastbound left-through-right lane to a through-right lane;
    - Add a westbound left-turn lane;
    - Modify the westbound left-through-right lane to a through-right lane;
    - Add a northbound left-turn lane;
    - Modify the northbound left-through-right lane to a through-right lane;
    - Add a southbound left-turn lane;
    - Modify the southbound left-through-right lane to a through-right lane; and
    - Signalize the intersection with protective left-turn phasing in all directions.

Project's Equitable Fair Share

- It is recommended that the Project contribute their equitable fair share as listed in Table XI for the future improvements necessary to maintain an acceptable LOS.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Engineer I/II
Christian Sanchez	Engineer I/II
Dennis Wynn	Sr. Engineering Technician
Adrian Benavides	Engineering Aide
Carlos Topete	Engineering Aide

Persons Consulted:

Sherry Munday	Los Banos Unified School District
Scott Odell, AICP	Odell Planning & Research, Inc.
Stacy Souza Elms	City of Los Banos
Nirorn Than	City of Los Banos
Jose Lemus, PE	City of Los Banos

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Appendix A: Scope of Work

April 17, 2023

Ms. Stacy Souza Elms
City of Los Banos
520 J Street
Los Banos, CA 93635

Via Email Only: stacy.souza@losbanos.org

Subject: Proposed Scope of Work for the Preparation of a Traffic Impact Analysis and Vehicle Miles Traveled Analysis for the Los Banos Unified School District Transition Kindergarten School located at the Southwest Corner of Place Road and B Street in the City of Los Banos (JLB Project 049-003)

Dear Ms. Souza Elms,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) and Vehicle Miles Traveled (VMT) Analysis for the Los Banos Unified School District (LBUSD) Transitional Kindergarten (TK) School (Project) located at the southwest corner of Place Road and B Street in the City of Los Banos. The Project proposes to develop a TK school with 19 classrooms and up to 720 students. The Project is expected to serve all TK students residing within the District. Based on information provided to JLB, the Project will be developed on a site that was planned to accommodate single family residential. An aerial of the Project vicinity and Project Site Plans are shown in Exhibits A and Exhibit B, respectively.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term roadway and circulation needs, conduct a VMT analysis, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on-site and off-site traffic impacts of the proposed Project, JLB proposes the following Scope of Work.

Scope of Work

- JLB will utilize a Merced Association of Governments (MCAG) regional travel demand model or historical growth trends for States Routes (SR) 152 and 165.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including intersection geometrics and traffic controls, will be verified.
- JLB will evaluate the adequacy of access points, on-site circulation (including student drop off/loading areas) and queuing requirements at driveways under long term cumulative conditions.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned walkways in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.

- JLB will obtain recent or schedule and conduct new traffic counts at the study facility(ies) as necessary. Traffic counts will be conducted when schools in the vicinity are in session.
- JLB will identify the current bell schedules for other LBUSD schools in the vicinity of the Project.
- JLB will describe any planned roadway improvements and their funding source.
- JLB will note current parking restrictions at the school site.
- JLB will prepare CA MUTCD Warrant 3 "Peak Hour" for unsignalized study intersections under all study scenarios.
- JLB will prepare a three-year collision analysis based on the Statewide Integrated Traffic Reporting System (SWITRS) database for all existing study facilities.
- JLB will forecast trip distribution based on turn count information and knowledge of the existing and planned circulation network in the vicinity of the Project.
- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s). JLB will use HCM 6th or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.
- JLB will include a section on the Project's equitable fair share calculations of identified improvements for the Cumulative Year plus Project Traffic Conditions scenario.
- JLB will prepare the Project's Vehicle Miles Traveled (VMT) using resources through the City of Los Banos and Merced County Association of Governments.

Study Scenarios

1. Existing Traffic Conditions with needed improvements (if any);
2. Near Term Year 2029 plus Project Traffic Conditions with proposed improvement measures (if any);
3. Cumulative Year 2044 No Project Traffic Conditions with proposed improvement measures (if any); and
4. Cumulative Year 2044 plus Project Traffic Conditions with proposed improvement measures (if any).

Weekday peak hours to be analyzed (Tuesday, Wednesday or Thursday)

1. 7 - 9 AM peak hour

Study Intersections

1. Mercy Springs Road (SR 165) / B Street
2. Project Driveway 1 / B Street
3. Place Road / B Street
4. Place Road / Project Driveway 2
5. Mercy Springs Road (SR 165) / San Luis Street
6. Miller Lane / San Luis Street
7. Place Road / San Luis Street
8. Miller Lane / Pacheco Boulevard (SR 152)

Queuing analysis is included in the proposed Scope of Work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left-turn and right-turn lanes at all study intersections.

Study Segments

1. none

Project Only Trip Assignment to State Facilities

1. none

Project Trip Generation

The trip generation rates for the proposed Project were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE) and data from the Los Banos Unified School District. Table I presents the trip generation for the proposed Project with estimated trip generation rates for the preschool land use. These were estimated using the operational statement and other similar land uses such as Day Care (565). At buildout, the proposed Project is estimated to generate approximately 3,000 daily trips, 720 AM peak hour trips, 1,440 MD peak hour trips and 61 PM peak hour trips. Table II presents the trip generation for the General Plan land use with trip generation rates for Single-Family Detached Housing (210). At buildout, the General Plan land use is estimated to generate a maximum of 207 daily trips, 15 AM peak hour trips, 12 MD peak hour trips and 21 PM peak hour trips. Compared to the General Plan land use, the proposed Project is estimated to yield a higher trip generation by 2,793 daily trips, 705 AM peak hour trips, 1,428 MD peak hour trips and 40 PM peak hour trips. The difference in trip generation between the proposed Project and the General Plan land use is summarized in Table III.

Table I: Project Trip Generation

Land Use	Size	Unit	Daily		AM (7:00-9:00) Peak Hour					MD (10:30-1:30) Peak Hour					PM (4:00-6:00) Peak Hour				
			Rate	Total	Trip Rate	In/Out %	In	Out	Total	Trip Rate	In/Out %	In	Out	Total	Trip Rate	In/Out %	In	Out	Total
Preschool Morning	360	Std.	4.17	1,500	2.00	50/50	360	360	720	2.00	50/50	360	360	720	0.00	50/50	0	0	0
Preschool Afternoon	360	Std.	4.17	1,500	0.00	50/50	0	0	0	2.00	50/50	360	360	720	0.17	0/100	0	61	61
Project Trips				**3,000**			**360**	**360**	**720**			**720**	**720**	**1,440**			**0**	**61**	**61**

Table II: General Plan Land Trip Generation

Land Use	Size	Unit	Daily		AM (7:00-9:00) Peak Hour					MD (10:30-1:30) Peak Hour					PM (4:00-6:00) Peak Hour				
			Rate	Total	Trip Rate	In/Out %	In	Out	Total	Trip Rate	In/Out %	In	Out	Total	Trip Rate	In/Out %	In	Out	Total
SFR (210)	22	d.u.	9.43	207	0.70	26/74	4	11	15	0.54	50/50	6	6	12	0.94	63/37	13	8	21
Project Trips				**207**			**4**	**11**	**15**			**6**	**6**	**12**			**13**	**8**	**21**

Note: d.u. = Dwelling Units

Table III: Difference in Trip Generation

Land Use	Size	Unit	Daily		AM (7:00-9:00) Peak Hour			MD (10:30-1:30) Peak Hour			PM (4:00-6:00) Peak Hour		
			Rate	Total	In	Out	Total	In	Out	Total	In	Out	Total
Preschool			3,000		360	360	720	720	720	1,440	0	61	61
SFR (210)			207		4	11	15	6	6	12	13	8	21
Project Trips			**2,793**		**356**	**349**	**705**	**714**	**714**	**1,428**	**-13**	**53**	**40**

Near Term Projects to be Included

Based on our local knowledge of the study area and consulting with City of Los Banos Planning & Development staff, JLB proposes to include near term projects in the vicinity of the proposed Project under the Near Term plus Project scenario. The near term projects proposed to be included in the Near Term scenario are:

Project Name	General Location
1. Bearden Plaza	SEC Mercy Springs Road and Overland Avenue
2. Camarena-Legacy	NEC Ward Road and Pacheco Boulevard
3. Commercial Development	NWQ Ward Road and Pacheco Boulevard
4. Mercy Springs Road Apartment	NWQ Mercy Springs Road and Santa Barbara
5. Mixed Use Development	NWC Place Road and Pacheco Boulevard
6. Shaunessy Village	SWQ Mercy Springs Road and Pacheco Boulevard
7. The Villas	SEC Center Avenue and Cardoza Road
8. Presidential Estates East Area Plan	SWQ Mercy Springs Road and Pacheco Boulevard
9. Residential Development	NEC Mercy Springs Road and Willmott Road
10. Stonefield Residential Development	NEC and SEC Place Road and Overland Avenue
11. Sunrise Ranch	SEC Place Road and B Street

Other Near Term Projects the City, County or Caltrans has knowledge and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2029. City, County and Caltrans as appropriate would provide JLB with project details such as a project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The Scope of Work is based on our understanding of this Project and our experience with similar TIAs. In the absence of comments by May 8, 2023 it will be assumed that the Scope of Work is acceptable to the agency(ies) that have not submitted any comments. If you have any questions or require additional information, please contact me by phone at (559) 317-6243, or via email at marndt@JLBtraffic.com.

Sincerely,

Matt Arndt, EIT
Engineer I/II

cc: Brian Guerrero, County of Merced
Hilda Sousa, Caltrans District 10
Tom Dumas, Caltrans District 10
Jose Benavides, JLB Traffic Engineering, Inc.

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Exhibit A – Project Vicinity

Exhibit B – Project Site Plan

Matt Arndt

From: Sherry Munday <SMunday@losbanosusd.k12.ca.us>
Sent: Friday, May 12, 2023 1:21 PM
To: Matt Arndt
Cc: Jose Benavides; Scott Odell
Subject: RE: Los Banos TK School Draft Scope of Work

Hi Ma. ,
Please see the response below that I received from Nirorn from the City of Los Banos.

Sherry,

I'm sorry, this slipped through for me. Below are a few minor comments:

1. Week day peak hours to be analyzed is shown as 7-9 AM only. Please include PM peak hour in the analysis also.
2. Under near term project (up to project year 2029), please include Northpointe Residential Development. This includes a 117 acre of residential with 281 low density units, 262 Medium density units, and 84 high density units. This project will be located east of Dove St. and Westminster Wy intersection.

Otherwise this scope is fine for me.

Thank you,
Nirorn Than, PE

Thank you,

Sherry Munday
Facilities & Special Projects Manager
Los Banos Unified School District - FOT
646 West Pacheco Blvd
Los Banos CA 93635
Office: 209-826-1936
Cell: 209-592-2162

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, May 12, 2023 10:35 AM
To: Sherry Munday <SMunday@losbanosusd.k12.ca.us>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Scott Odell <scott@odellplanning.com>
Subject: RE: Los Banos TK School Draft Scope of Work

Hello,

Have you heard anything from the responsible agencies on this Draft Scope of Work? I sent it on April 17th and have followed up with them for the third time today and haven't heard anything back from them yet.

Sincerely,

Matt Arndt

From: Guerrero, Brian <Brian.Guerrero@countyofmerced.com>
Sent: Friday, May 12, 2023 1:35 PM
To: Matt Arndt
Subject: RE: LBUSD Transition Kindergarten Draft Scope of Work (JLB 049-003)

Hey Ma. ,

The scope looks good on our end. I don't have any comments on it.

Regards,

Brian

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, May 12, 2023 10:32 AM
To: Guerrero, Brian <Brian.Guerrero@countyofmerced.com>
Subject: RE: LBUSD Transition Kindergarten Draft Scope of Work (JLB 049-003)

Hello Brian,

Have you had a chance to review this Draft Scope of Work?

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Monday, May 8, 2023 8:31 AM
To: brian.guerrero@countyofmerced.com
Subject: RE: LBUSD Transition Kindergarten Draft Scope of Work (JLB 049-003)

Matt Arndt

From: Nirorn Than <nirorn.than@losbanos.org>
Sent: Friday, June 2, 2023 2:17 PM
To: Matt Arndt
Subject: RE: Los Banos TK School TIA Draft Scope of Work

Hi Matt

I would prefer 11:00 am – 1:00 pm.

Thank you,

Nirorn Than, PE

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, June 2, 2023 2:07 PM
To: Nirorn Than <nirorn.than@losbanos.org>
Subject: RE: Los Banos TK School TIA Draft Scope of Work
Importance: High

Hello,

Just wanted to follow up with this email to ensure that you got it. Can you please let me know when you get these chance?

Sincerely,

Matthew Arndt
JLB TRAFFIC ENGINEERING
Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

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Fresno, CA 93704
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Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Wednesday, May 31, 2023 5:47 PM

Appendix B: Traffic Counts

Prepared by National Data & Surveying Services

SR 165/N Mercey Springs Rd & E B St

Peak Hour Turning Movement Count

ID: 23-090015-005
City: Los Banos

Day: Tuesday
Date: 1/24/2023

PEAK HOURS	COUNT PERIODS
AM: 07:45 AM - 08:45 AM	AM: 7:00 AM - 09:00 AM
NOON: NONE	NOON: NONE
PM: NONE	PM: NONE

CONTROL: Signalized

	AM	NOON	PM
TEV	2166	0	0
PHF	0.87		

SOUTHBOUND – SR 165/N Mercey Springs Rd

	Right	Thru	Left	U-Turn	Total (out)
AM	94	520	132	0	674
NOON	0	0	0	0	0
PM	0	0	0	0	0
Bikes	0	0	0	0	

NORTHBOUND – SR 165/N Mercey Springs Rd

	Total (out)	U-Turn	Left	Thru	Right
AM	767	0	66	429	47
NOON	0	0	0	0	0
PM	0	0	0	0	0
Bikes		0	0	0	0

EASTBOUND – E B St

	AM	NOON	PM	Bikes
Total (out)	373	0	0	
U-Turn	0	0	0	0
Left	112	0	0	0
Thru	173	0	0	0
Right	114	0	0	0

WESTBOUND – E B St

	AM	NOON	PM	Bikes
Right	133	0	0	0
Thru	213	0	0	0
Left	133	0	0	0
U-Turn	0	0	0	0
Total (out)	352	0	0	

Cars (AM)

Approach	U-Turn	Left	Thru	Right
Southbound		126	495	92
Northbound	65		393	46
Eastbound		109	168	114
Westbound		132	210	129

HT (AM)

Approach	Left	Thru	Right
Southbound	6	25	2
Northbound	1	36	1
Eastbound	3	5	0
Westbound	1	3	4

Cars (NOON)

All movements: 0

HT (NOON)

All movements: 0

Cars (PM)

All movements: 0

HT (PM)

All movements: 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg, westbound	2	0	0
North leg, eastbound	3	0	0
West leg, southbound	0	0	0
West leg, northbound	3	0	0
East leg, southbound	0	0	0
East leg, northbound	0	0	0
South leg, eastbound	3	0	0
South leg, westbound	1	0	0
Diagonals (all)	0	0	0

Turning Movement Report

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

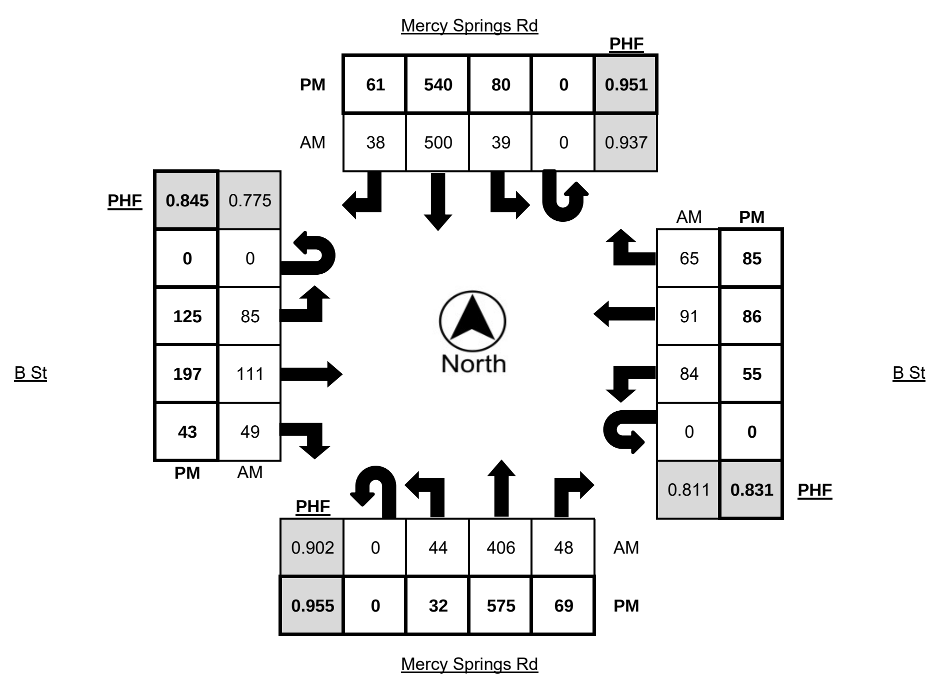
LOCATION Mercy Springs Rd @ B St
LATITUDE 37.0668
COUNTY Merced
LONGITUDE -120.8352
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
11:00 AM - 11:15 AM	0	5	78	11	10	0	0	119	10	13	0	12	12	16	0	0	6	14	5	0
11:15 AM - 11:30 AM	0	17	72	13	7	0	7	124	19	13	0	18	17	22	0	0	20	22	12	0
11:30 AM - 11:45 AM	0	16	82	17	7	0	6	112	12	5	0	17	28	23	0	0	14	21	7	1
11:45 AM - 12:00 PM	0	4	98	14	9	0	2	107	19	13	0	22	26	16	0	0	19	29	11	0
12:00 PM - 12:15 PM	0	18	88	13	10	0	15	111	14	15	0	27	36	16	0	0	24	20	12	1
12:15 PM - 12:30 PM	0	12	92	13	8	0	9	134	6	9	0	21	27	14	1	0	15	20	17	0
12:30 PM - 12:45 PM	0	8	117	13	4	0	9	138	7	9	0	19	27	11	1	0	21	19	18	0
12:45 PM - 1:00 PM	0	6	109	9	10	0	6	117	11	8	0	18	21	8	2	0	24	32	18	0
TOTAL	**0**	**86**	**736**	**103**	**65**	**0**	**54**	**962**	**98**	**85**	**0**	**154**	**194**	**126**	**4**	**0**	**143**	**177**	**100**	**2**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	15	145	16	5	0	12	140	11	13	0	38	45	11	0	0	21	39	29	1
4:15 PM - 4:30 PM	0	11	146	8	5	0	14	149	17	12	0	38	30	12	0	0	19	26	19	1
4:30 PM - 4:45 PM	0	7	139	4	7	0	13	134	12	8	0	30	56	6	0	0	21	27	27	0
4:45 PM - 5:00 PM	0	6	130	16	2	0	14	130	10	5	0	19	43	13	0	0	17	21	15	1
5:00 PM - 5:15 PM	0	5	158	14	3	0	14	127	15	9	0	42	58	8	0	0	4	25	19	0
5:15 PM - 5:30 PM	0	8	141	16	1	0	20	146	13	13	0	24	62	9	0	0	14	18	17	0
5:30 PM - 5:45 PM	0	10	143	22	6	0	28	133	15	6	0	25	37	9	0	0	14	27	27	0
5:45 PM - 6:00 PM	0	9	133	17	7	0	18	134	18	5	0	34	40	17	1	0	23	16	22	0
TOTAL	**0**	**71**	**1135**	**113**	**36**	**0**	**133**	**1093**	**111**	**71**	**0**	**250**	**371**	**85**	**1**	**0**	**133**	**199**	**175**	**3**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
12:00 PM - 1:00 PM	0	44	406	48	32	0	39	500	38	41	0	85	111	49	4	0	84	91	65	1
5:00 PM - 6:00 PM	0	32	575	69	17	0	80	540	61	33	0	125	197	43	1	0	55	86	85	0

	PHF	Trucks
AM	0.958	5.0%
PM	0.994	2.6%



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

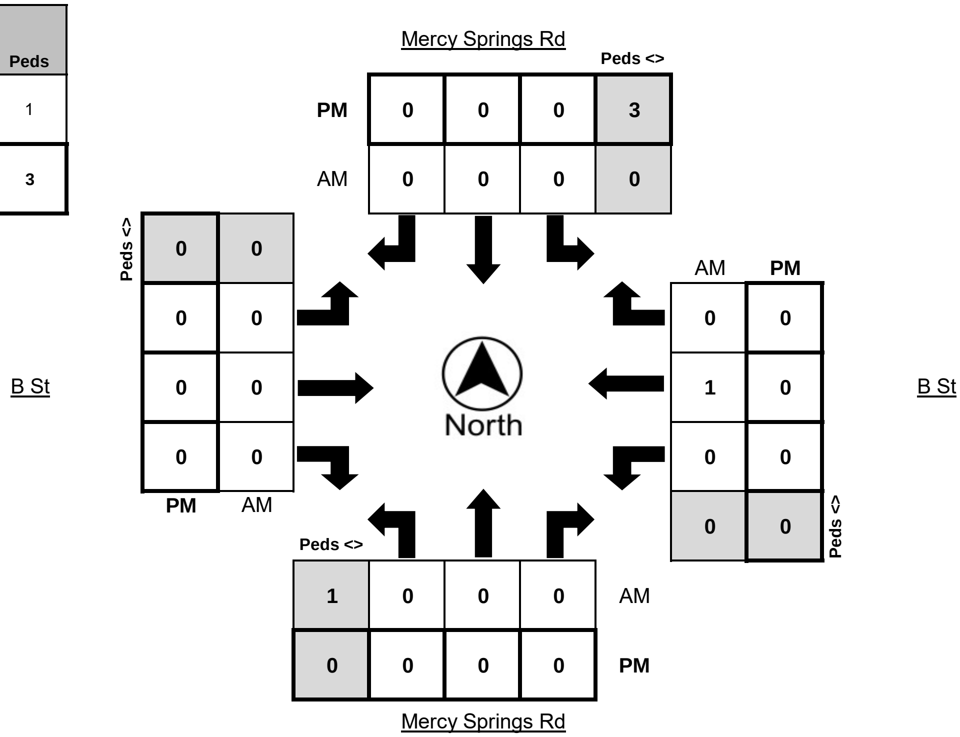
LOCATION Mercy Springs Rd @ B St
LATITUDE 37.0668
COUNTY Merced
LONGITUDE -120.8352
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM - 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM - 12:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
12:00 PM - 1:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
5:00 PM - 6:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	1
PM Peak Total	0	3



JLB Traffic Engineering, Inc.

516 West Shaw Avenue, Suite 103
Fresno, CA, 93704
Traffic Engineering, Transportation, & Parking Solutions
www.JLBtraffic.com

File Name : 02 Las Palmas St at B St
Site Code : 00000000
Start Date : 8/17/2023
Page No : 1

Groups Printed- Unshifted

	LAS PALMAS STREET From North				B STREET From East				LAS PALMAS STREET From South				B STREET From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	1	0	10	0	6	44	0	2	0	0	0	0	0	21	0	1	85
07:15 AM	4	0	5	0	6	59	0	2	0	0	0	0	0	37	4	0	117
07:30 AM	9	0	5	0	30	85	0	5	0	0	0	0	0	58	11	0	203
07:45 AM	16	0	17	0	44	101	0	7	0	0	0	0	0	78	16	0	279
Total	30	0	37	0	86	289	0	16	0	0	0	0	0	194	31	1	684
08:00 AM	23	0	32	0	21	114	0	2	0	0	0	0	0	113	8	0	313
08:15 AM	16	0	24	0	13	99	0	1	0	0	0	0	0	101	7	0	261
08:30 AM	2	0	11	0	10	83	0	0	0	0	0	0	0	42	0	0	148
08:45 AM	1	0	2	0	3	56	0	0	0	0	0	0	0	34	6	0	102
Total	42	0	69	0	47	352	0	3	0	0	0	0	0	290	21	0	824
*** BREAK ***																	
11:00 AM	3	0	2	0	1	47	0	0	0	0	0	0	0	19	1	0	73
11:15 AM	3	0	2	0	0	39	0	1	0	0	0	0	0	32	2	0	79
11:30 AM	4	0	5	0	3	37	0	0	0	0	0	0	0	52	3	0	104
11:45 AM	10	0	8	0	11	39	0	0	0	0	0	0	0	38	7	0	113
Total	20	0	17	0	15	162	0	1	0	0	0	0	0	141	13	0	369
12:00 PM	6	0	3	0	2	39	0	2	0	0	0	0	0	47	9	0	108
12:15 PM	5	0	4	0	9	35	0	0	0	0	0	0	0	39	2	0	94
12:30 PM	2	0	3	0	3	37	0	0	0	0	0	0	0	32	2	0	79
12:45 PM	4	0	6	0	3	28	0	0	0	0	0	0	0	28	4	0	73
Total	17	0	16	0	17	139	0	2	0	0	0	0	0	146	17	0	354
Grand Total	109	0	139	0	165	942	0	22	0	0	0	0	0	771	82	1	2231
Apprch %	44	0	56	0	14.6	83.4	0	1.9	0	0	0	0	0	90.3	9.6	0.1	
Total %	4.9	0	6.2	0	7.4	42.2	0	1	0	0	0	0	0	34.6	3.7	0	

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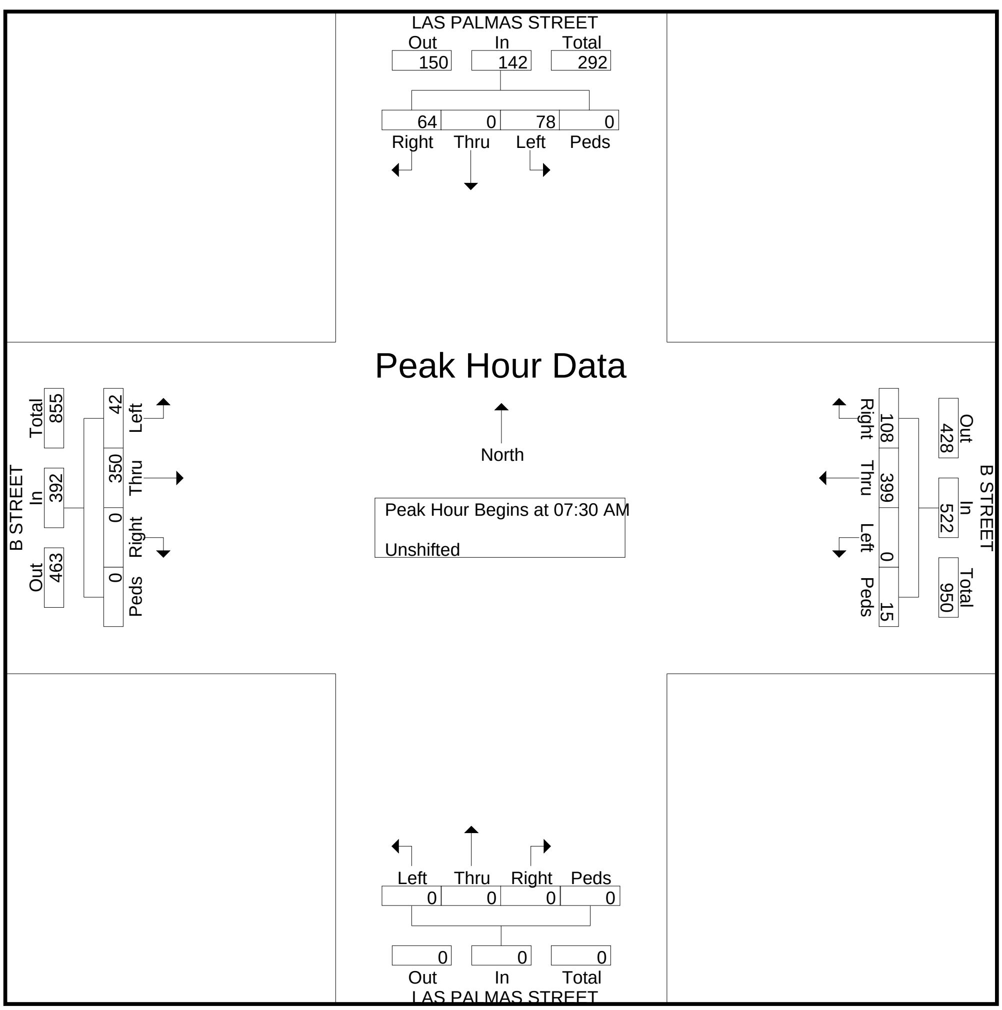
File Name : 02 Las Palmas St at B St
Site Code : 00000000
Start Date : 8/17/2023
Page No : 2

	LAS PALMAS STREET From North					B STREET From East					LAS PALMAS STREET From South					B STREET From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	9	0	5	0	14	30	85	0	5	120	0	0	0	0	0	0	58	11	0	69	203
07:45 AM	16	0	17	0	33	**44**	101	0	**7**	**152**	0	0	0	0	0	0	78	**16**	0	94	279
08:00 AM	**23**	0	**32**	0	**55**	21	**114**	0	2	137	0	0	0	0	0	0	**113**	8	0	**121**	**313**
08:15 AM	16	0	24	0	40	13	99	0	1	113	0	0	0	0	0	0	101	7	0	108	261
Total Volume	64	0	78	0	142	108	399	0	15	522	0	0	0	0	0	0	350	42	0	392	1056
% App. Total	45.1	0	54.9	0		20.7	76.4	0	2.9		0	0	0	0		0	89.3	10.7	0		
PHF	.696	.000	.609	.000	.645	.614	.875	.000	.536	.859	.000	.000	.000	.000	.000	.000	.774	.656	.000	.810	.843



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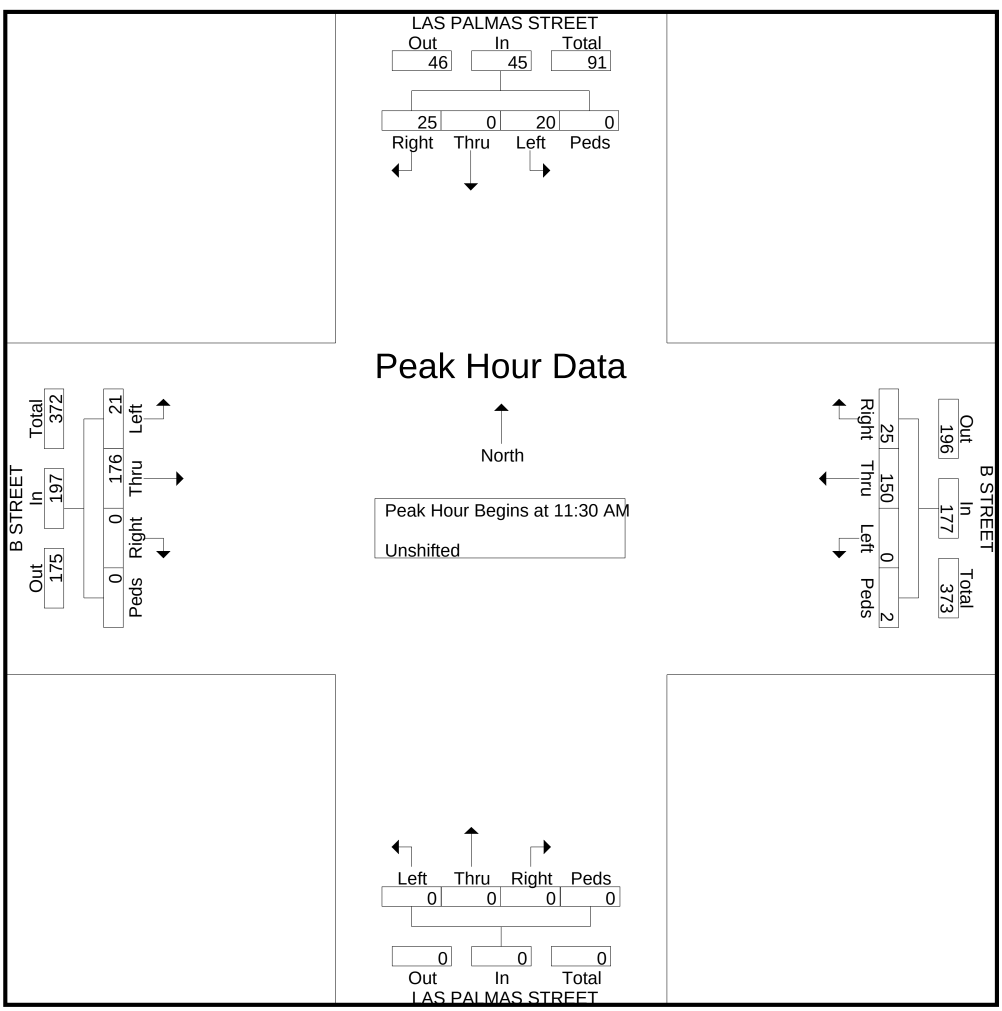
File Name : 02 Las Palmas St at B St
Site Code : 00000000
Start Date : 8/17/2023

	LAS PALMAS STREET From North					B STREET From East					LAS PALMAS STREET From South					B STREET From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:15 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	4	0	5	0	9	3	37	0	0	40	0	0	0	0	0	0	**52**	3	0	55	104
11:45 AM	**10**	0	**8**	0	**18**	**11**	**39**	0	0	**50**	0	0	0	0	0	0	38	7	0	45	**113**
12:00 PM	6	0	3	0	9	2	39	0	**2**	43	0	0	0	0	0	0	47	**9**	0	**56**	108
12:15 PM	5	0	4	0	9	9	35	0	0	44	0	0	0	0	0	0	39	2	0	41	94
Total Volume	25	0	20	0	45	25	150	0	2	177	0	0	0	0	0	0	176	21	0	197	419
% App. Total	55.6	0	44.4	0		14.1	84.7	0	1.1		0	0	0	0		0	89.3	10.7	0		
PHF	.625	.000	.625	.000	.625	.568	.962	.000	.250	.885	.000	.000	.000	.000	.000	.000	.846	.583	.000	.879	.927



Prepared by National Data & Surveying Services

Place Rd & E B St

Peak Hour Turning Movement Count

ID: 23-090015-004
City: Los Banos

Day: Tuesday
Date: 1/24/2023

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	03:15 PM - 04:15 PM	2:00 PM - 06:00 PM

SOUTHBOUND (Place Rd)

	Right	Through	Left	U-Turn	Exit
AM	143	154	142	0	244
NOON	0	0	0	0	0
PM	61	98	93	0	232
Bikes	0	0	0	0	

EASTBOUND (E B St)

	AM	NOON	PM	Bikes
Exit	518	0	368	
U-Turn	0	0	0	0
Left	39	0	48	0
Through	317	0	270	0
Right	93	0	62	0

WESTBOUND (E B St)

	PM	NOON	AM	Bikes
Right	67	0	61	0
Through	213	0	276	0
Left	20	0	64	0
U-Turn	0	0	0	0
Exit	426	0	486	

NORTHBOUND (Place Rd)

	Exit	U-Turn	Left	Through	Right
Bikes		0	0	0	0
PM	182	2	94	117	63
NOON	0	0	0	0	0
AM	311	0	99	144	27

CONTROL

Signalized

	AM	NOON	PM
TEV	1559	0	1208
PHF	0.81		0.85

Cars and Heavy Trucks

Movement	Cars (AM)	Cars (NOON)	Cars (PM)	HT (AM)	HT (NOON)	HT (PM)
SB Right	143	0	61	0	0	0
SB Through	152	0	94	2	0	4
SB Left	142	0	61	0	0	2
EB Left	37	0	47	2	0	1
EB Through	314	0	268	3	0	2
EB Right	87	0	61	6	0	1
WB Right	61	0	66	0	0	1
WB Through	270	0	210	6	0	3
WB Left	60	0	20	4	0	0
NB Left	96	0	89	3	0	5
NB Through	144	0	116	0	0	1
NB Right	27	0	62	0	0	1

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (westward)	8	0	4
North (eastward)	2	0	7
West (southward)	18	0	1
West (northward)	4	0	76
East (southward)	3	0	1
East (northward)	1	0	6
South (westward)	0	0	2
South (eastward)	1	0	0
Diagonal NW	0	0	0
Diagonal NE	0	0	0
Diagonal SW	0	0	0
Diagonal SE	0	0	0

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

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www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

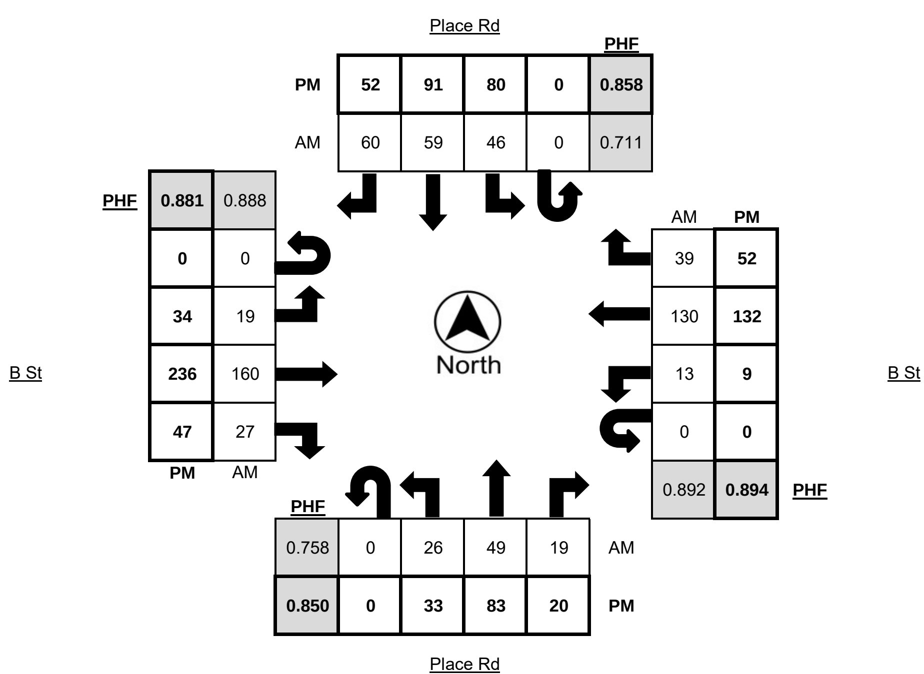
LOCATION	Place Rd @ B St	**LATITUDE**	37.0667
COUNTY	Merced	**LONGITUDE**	-120.8264
COLLECTION DATE	Thursday, April 13, 2023	**WEATHER**	Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:00 AM - 11:15 AM	0	5	13	1	0	0	10	6	5	0	0	5	22	5	0	0	3	19	10	1
11:15 AM - 11:30 AM	0	3	12	5	0	0	11	4	14	0	0	2	29	2	0	0	2	33	7	2
11:30 AM - 11:45 AM	0	6	7	7	0	0	7	11	10	0	0	11	34	6	1	0	3	25	7	0
11:45 AM - 12:00 PM	0	6	15	5	0	0	14	25	19	0	0	4	34	6	0	0	1	33	12	0
12:00 PM - 12:15 PM	0	5	12	2	0	0	17	6	18	0	0	7	40	11	1	0	5	36	10	3
12:15 PM - 12:30 PM	0	12	14	5	0	0	8	17	10	0	0	5	38	7	1	0	3	29	5	0
12:30 PM - 12:45 PM	0	3	8	7	0	0	7	11	13	1	0	3	48	3	0	0	4	32	12	0
12:45 PM - 1:00 PM	0	10	11	4	0	0	11	12	21	0	0	4	26	7	0	0	1	40	8	0
TOTAL	**0**	**50**	**92**	**36**	**0**	**0**	**85**	**92**	**110**	**1**	**0**	**41**	**271**	**47**	**3**	**0**	**22**	**247**	**71**	**6**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	9	24	8	0	0	18	19	14	0	0	7	45	14	0	0	8	70	18	1
4:15 PM - 4:30 PM	0	11	23	5	0	0	16	19	9	0	0	5	46	10	0	0	4	33	9	4
4:30 PM - 4:45 PM	0	5	16	5	0	0	10	18	6	1	0	3	53	6	0	0	6	48	17	0
4:45 PM - 5:00 PM	0	7	19	5	1	0	21	19	16	0	0	9	55	9	0	0	3	34	17	0
5:00 PM - 5:15 PM	0	10	23	7	1	0	19	19	9	0	0	11	49	12	0	0	1	39	14	0
5:15 PM - 5:30 PM	0	7	17	3	0	0	16	18	12	0	0	6	70	14	0	0	1	28	11	0
5:30 PM - 5:45 PM	0	8	20	5	0	0	25	24	16	0	0	7	66	11	0	0	5	41	6	0
5:45 PM - 6:00 PM	0	8	23	5	0	0	20	30	15	0	0	10	51	10	0	0	2	24	21	1
TOTAL	**0**	**65**	**165**	**43**	**2**	**0**	**145**	**166**	**97**	**1**	**0**	**58**	**435**	**86**	**0**	**0**	**30**	**317**	**113**	**6**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:45 AM - 12:45 PM	0	26	49	19	0	0	46	59	60	1	0	19	160	27	2	0	13	130	39	3
5:00 PM - 6:00 PM	0	33	83	20	1	0	80	91	52	0	0	34	236	47	0	0	9	132	52	1

	PHF	Trucks
AM	0.930	0.9%
PM	0.928	0.2%



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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

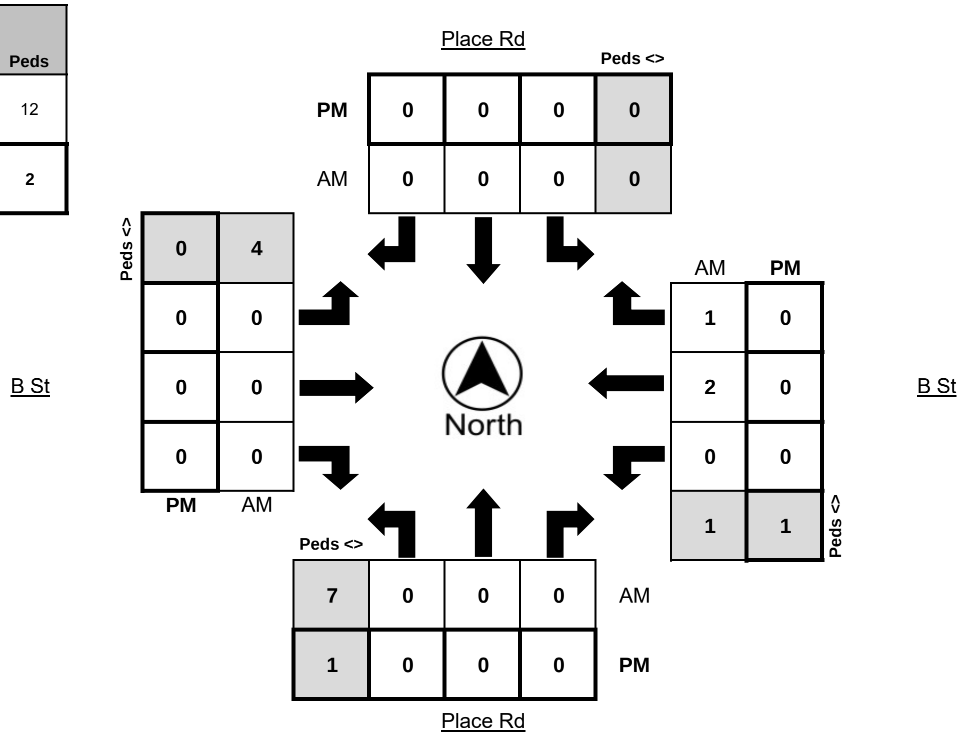
LOCATION Place Rd @ B St
LATITUDE 37.0667
COUNTY Merced
LONGITUDE -120.8264
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11:45 AM - 12:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
12:15 PM - 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	4	0	0	0	1	0	0	0	2
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**2**	**2**	**4**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	4	0	0	0	2	0	0	2	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:45 AM - 12:45 PM	0	0	0	0	0	0	0	7	0	0	0	1	0	2	1	4
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0

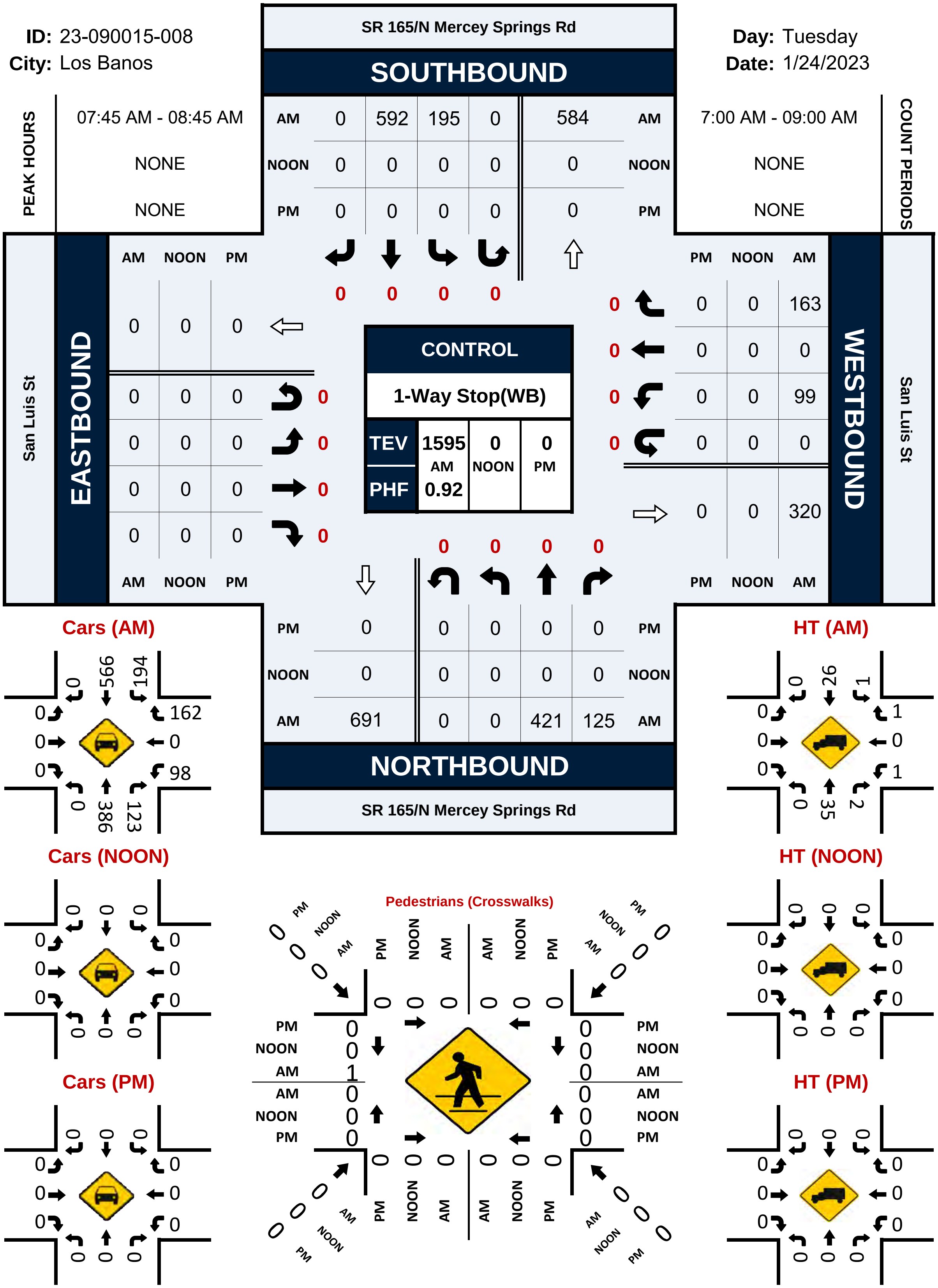
	Bikes	Peds
AM Peak Total	3	12
PM Peak Total	0	2



Prepared by National Data & Surveying Services

SR 165/N Mercey Springs Rd & San Luis St

Peak Hour Turning Movement Count



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

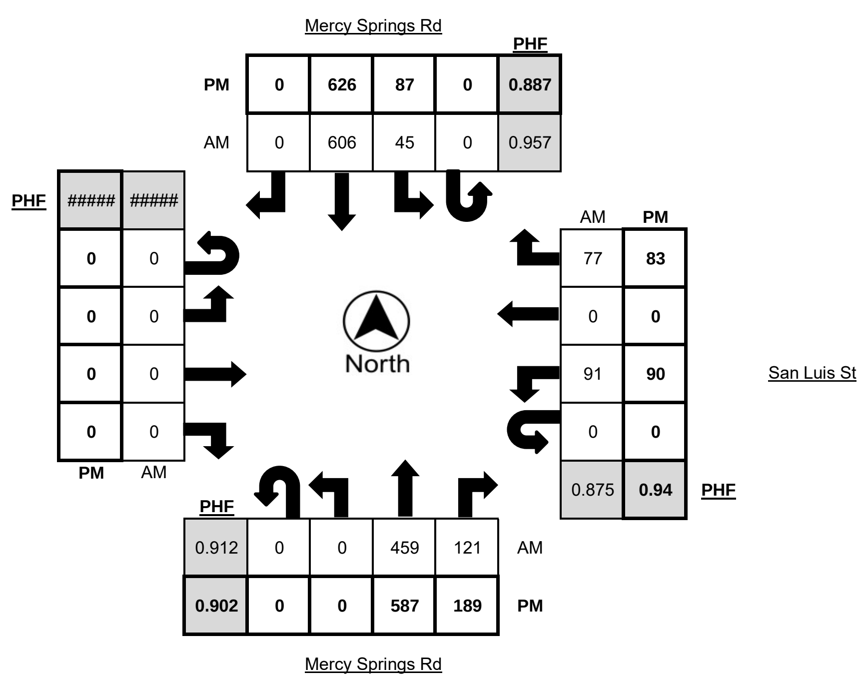
LOCATION Mercy Springs Rd @ San Luis St
LATITUDE 37.0618
COUNTY Merced
LONGITUDE -120.8353
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:00 AM - 11:15 AM	0	0	101	20	9	0	13	136	0	10	0	0	0	0	0	0	27	0	11	0
11:15 AM - 11:30 AM	0	0	102	20	9	0	11	165	0	12	0	0	0	0	0	0	27	0	12	0
11:30 AM - 11:45 AM	0	0	117	23	9	0	13	157	0	8	0	0	0	0	0	0	18	0	11	0
11:45 AM - 12:00 PM	0	0	103	28	6	0	10	126	0	11	0	0	0	0	0	0	24	0	11	0
12:00 PM - 12:15 PM	0	0	96	34	10	0	11	153	0	16	0	0	0	0	0	0	23	0	23	0
12:15 PM - 12:30 PM	0	0	109	31	7	0	11	159	0	15	0	0	0	0	0	0	24	0	19	1
12:30 PM - 12:45 PM	0	0	122	37	3	0	11	153	0	6	0	0	0	0	0	0	16	0	15	0
12:45 PM - 1:00 PM	0	0	132	19	12	0	12	141	0	10	0	0	0	0	0	0	28	0	20	0
TOTAL	**0**	**0**	**882**	**212**	**65**	**0**	**92**	**1190**	**0**	**88**	**0**	**0**	**0**	**0**	**0**	**0**	**187**	**0**	**122**	**1**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	149	56	4	0	25	159	0	14	0	0	0	0	0	0	29	0	17	0
4:15 PM - 4:30 PM	0	0	161	54	5	0	23	178	0	13	0	0	0	0	0	0	18	0	23	1
4:30 PM - 4:45 PM	0	0	147	44	8	0	18	138	0	9	0	0	0	0	0	0	20	0	20	0
4:45 PM - 5:00 PM	0	0	130	35	2	0	21	151	0	8	0	0	0	0	0	0	23	0	23	1
5:00 PM - 5:15 PM	0	0	176	40	5	0	14	160	0	9	0	0	0	0	0	0	14	0	25	1
5:15 PM - 5:30 PM	0	0	148	39	3	0	18	149	0	11	0	0	0	0	0	0	18	0	15	0
5:30 PM - 5:45 PM	0	0	128	32	7	0	17	158	0	7	0	0	0	0	0	0	24	0	16	0
5:45 PM - 6:00 PM	0	0	168	34	14	0	17	157	0	4	0	0	0	0	0	0	15	0	12	0
TOTAL	**0**	**0**	**1207**	**334**	**48**	**0**	**153**	**1250**	**0**	**75**	**0**	**0**	**0**	**0**	**0**	**0**	**161**	**0**	**151**	**3**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
12:00 PM - 1:00 PM	0	0	459	121	32	0	45	606	0	47	0	0	0	0	0	0	91	0	77	1
4:00 PM - 5:00 PM	0	0	587	189	19	0	87	626	0	44	0	0	0	0	0	0	90	0	83	2

	PHF	Trucks
AM	0.988	5.7%
PM	0.909	3.9%



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

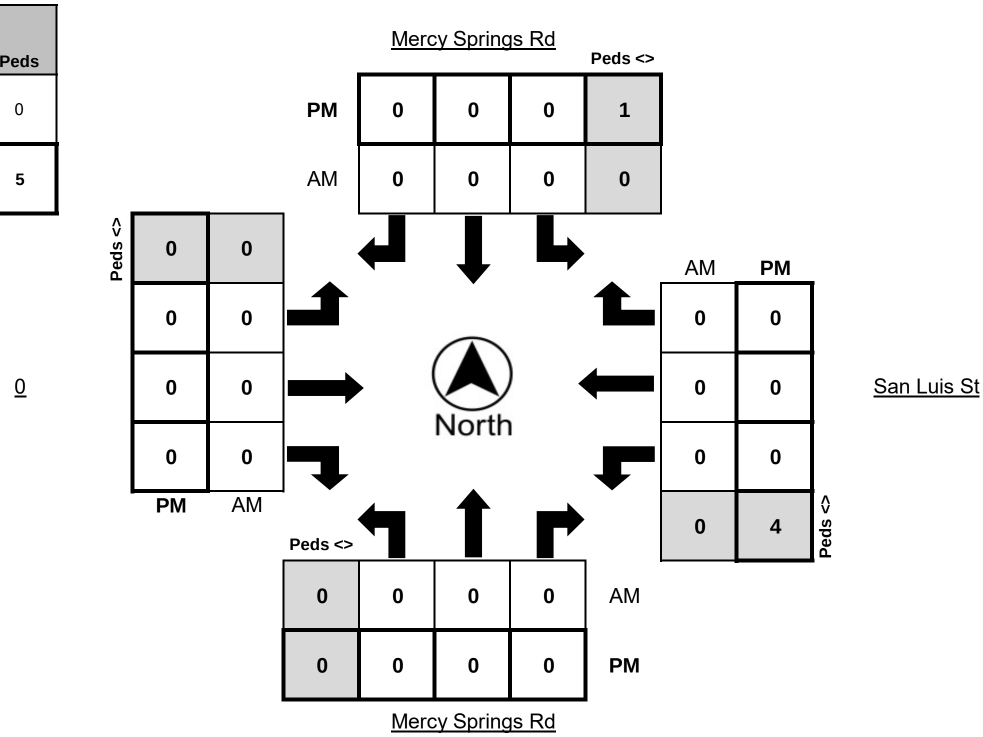
LOCATION Mercy Springs Rd @ San Luis St
COUNTY Merced
COLLECTION DATE Thursday, April 13, 2023
LATITUDE 37.0618
LONGITUDE -120.8353
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11:45 AM - 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM - 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
12:00 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	5



Prepared by National Data & Surveying Services

Miller Ln & San Luis St

Peak Hour Turning Movement Count

ID: 23-090015-007
City: Los Banos

Day: Tuesday
Date: 1/24/2023

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	NONE	NONE

SOUTHBOUND — Miller Ln

	Right	Thru	Left	U-Turn	Departing
AM	119	67	88	0	320
NOON	0	0	0	0	0
PM	0	0	0	0	0
	0	0	0	0	

WESTBOUND — San Luis St

		PM	NOON	AM
Right	0	0	0	144
Thru	0	0	0	179
Left	0	0	0	167
U-Turn	0	0	0	0
Departing		0	0	341

EASTBOUND — San Luis St

	AM	NOON	PM	
Departing	309	0	0	
U-Turn	0	0	0	0
Left	124	0	0	0
Thru	154	0	0	0
Right	14	0	0	0

NORTHBOUND — Miller Ln

	Departing	U-Turn	Left	Thru	Right
		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	248	0	11	52	99

CONTROL

4-Way Stop

	AM	NOON	PM
TEV	1218	0	0
PHF	0.81		

Cars (AM)

Approach	Movements
Southbound	118, 67, 88
Eastbound	124, 153, 14
Westbound	142, 178, 159
Northbound	10, 52, 99

HT (AM)

Approach	Movements
Southbound	1, 0, 0
Eastbound	0, 1, 0
Westbound	2, 1, 8
Northbound	1, 0, 0

Cars (NOON)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

HT (NOON)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

Cars (PM)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

HT (PM)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound (→)	4	0	0
North	Westbound (←)	1	0	0
West	Southbound (↓)	0	0	0
West	Northbound (↑)	8	0	0
East	Southbound (↓)	1	0	0
East	Northbound (↑)	3	0	0
South	Eastbound (→)	1	0	0
South	Westbound (←)	0	0	0
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

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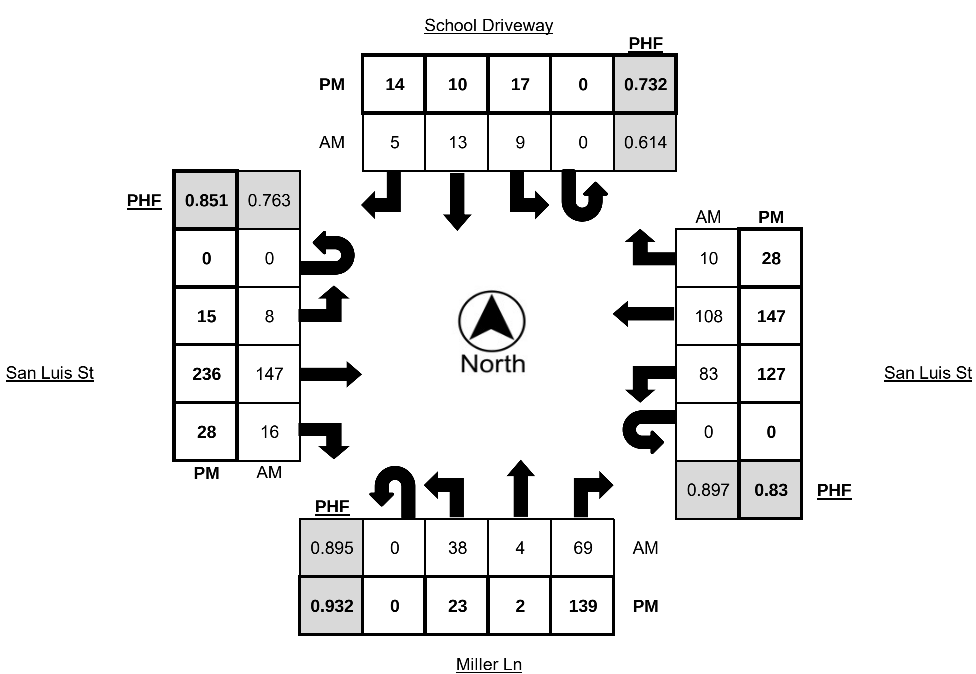
LOCATION Miller Ln @ San Luis St
COUNTY Merced
COLLECTION DATE Thursday, April 13, 2023
LATITUDE 37.0617
LONGITUDE -120.8290
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:00 AM - 11:15 AM	0	3	0	16	0	0	1	1	1	0	0	1	28	3	0	0	15	32	3	0
11:15 AM - 11:30 AM	0	3	1	14	0	0	1	2	0	0	0	2	27	4	0	0	17	30	2	0
11:30 AM - 11:45 AM	0	0	1	14	0	0	2	1	2	0	0	2	31	2	0	0	20	18	1	0
11:45 AM - 12:00 PM	0	4	2	20	0	0	2	7	2	0	0	1	32	1	0	0	23	29	2	0
12:00 PM - 12:15 PM	0	12	1	15	1	0	4	4	2	0	0	4	33	6	0	0	19	28	3	0
12:15 PM - 12:30 PM	0	10	0	21	0	0	2	1	1	0	0	1	33	4	1	0	19	34	3	2
12:30 PM - 12:45 PM	0	12	1	13	0	0	1	1	0	0	0	2	49	5	0	0	22	17	2	0
12:45 PM - 1:00 PM	0	6	1	16	0	0	1	2	1	0	0	0	28	2	1	0	15	39	1	0
TOTAL	**0**	**50**	**7**	**129**	**1**	**0**	**14**	**19**	**9**	**0**	**0**	**13**	**261**	**27**	**2**	**0**	**150**	**227**	**17**	**2**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	3	0	41	0	0	7	0	3	0	0	6	68	8	0	0	40	42	9	0
4:15 PM - 4:30 PM	0	5	1	30	0	0	3	2	2	0	0	2	60	5	1	0	25	33	9	1
4:30 PM - 4:45 PM	0	9	0	32	0	0	4	6	4	0	0	4	54	6	1	0	39	42	1	0
4:45 PM - 5:00 PM	0	6	1	36	0	0	3	2	5	0	0	3	54	9	0	0	23	30	9	1
5:00 PM - 5:15 PM	0	5	1	31	0	0	9	0	8	0	0	2	46	5	0	0	27	31	7	0
5:15 PM - 5:30 PM	0	11	1	33	0	0	6	1	3	0	0	2	43	6	0	0	19	22	2	0
5:30 PM - 5:45 PM	0	6	1	38	0	0	0	2	1	0	0	2	40	2	0	0	30	34	3	0
5:45 PM - 6:00 PM	0	5	3	37	0	0	9	1	4	0	0	1	37	7	0	0	33	20	4	0
TOTAL	**0**	**50**	**8**	**278**	**0**	**0**	**41**	**14**	**30**	**0**	**0**	**22**	**402**	**48**	**2**	**0**	**236**	**254**	**44**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:45 AM - 12:45 PM	0	38	4	69	1	0	9	13	5	0	0	8	147	16	1	0	83	108	10	2
4:00 PM - 5:00 PM	0	23	2	139	0	0	17	10	14	0	0	15	236	28	2	0	127	147	28	2

	PHF	Trucks
AM	0.973	0.8%
PM	0.866	0.5%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

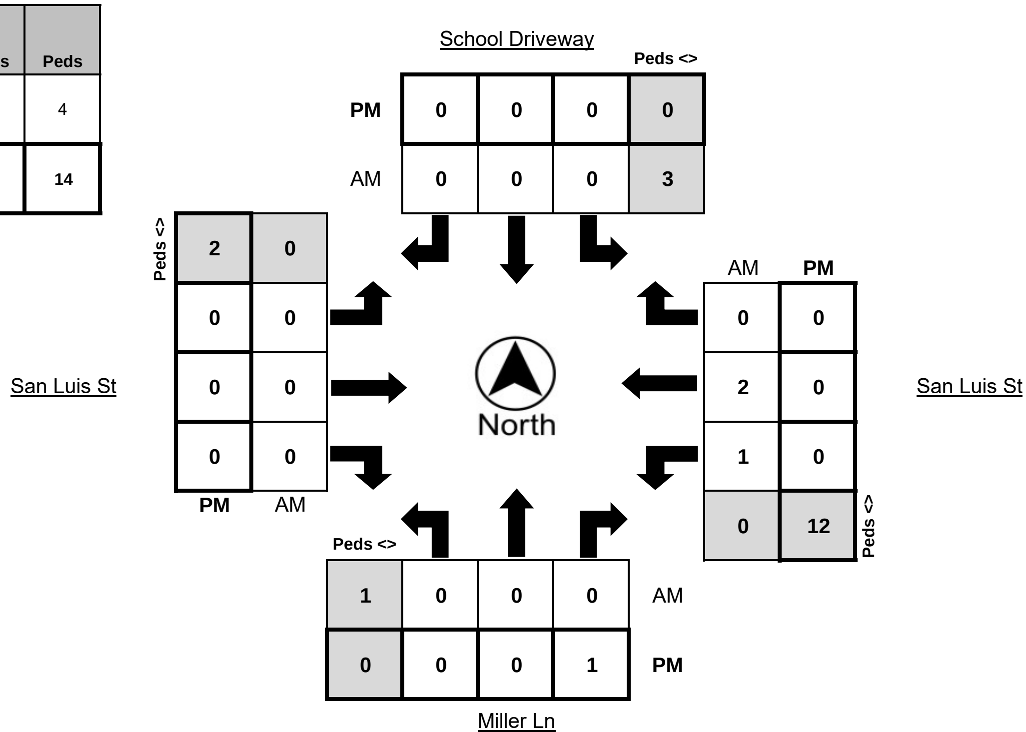
LOCATION Miller Ln @ San Luis St
LATITUDE 37.0617
COUNTY Merced
LONGITUDE -120.8290
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM - 11:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
11:45 AM - 12:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	1	1	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
12:15 PM - 12:30 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**3**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
4:30 PM - 4:45 PM	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
TOTAL	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**12**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:45 AM - 12:45 PM	0	0	0	3	0	0	0	1	0	0	0	0	1	2	0	0
4:00 PM - 5:00 PM	0	0	1	0	0	0	0	0	0	0	0	12	0	0	0	2

	Bikes	Peds
AM Peak Total	3	4
PM Peak Total	**1**	**14**



Prepared by National Data & Surveying Services

Place Rd & San Luis St

Peak Hour Turning Movement Count

ID: 23-090015-006
City: Los Banos

Day: Tuesday
Date: 1/24/2023

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	NONE	NONE

Place Rd – SOUTHBOUND

	Right	Thru	Left	U-Turn	Approach out
AM	151	0	50	0	251
NOON	0	0	0	0	0
PM	0	0	0	0	0
(red)	0	0	0	0	

San Luis St – EASTBOUND

	AM	NOON	PM	(red)
Out	462	0	0	
U-Turn	0	0	0	0
Left	124	0	0	0
Thru	261	0	0	0
Right	0	0	0	0

San Luis St – WESTBOUND

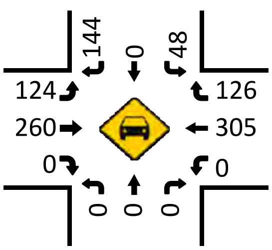
	(red)	PM	NOON	AM
Right	0	0	0	127
Thru	0	0	0	311
Left	0	0	0	0
U-Turn	0	0	0	0
Out		0	0	311

Place Rd – NORTHBOUND

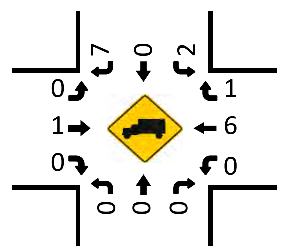
	Out	U-Turn	Left	Thru	Right
(red)		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	0	0	0	0	0

CONTROL			
1-Way Stop(SB)			
TEV	1024 (AM)	0 (NOON)	0 (PM)
PHF	0.87		

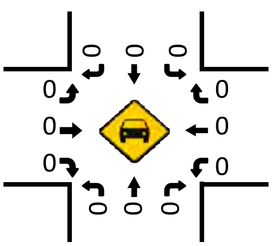
Cars (AM)



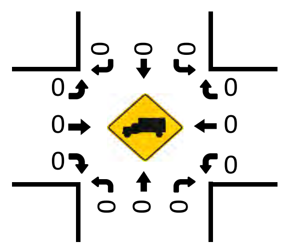
HT (AM)



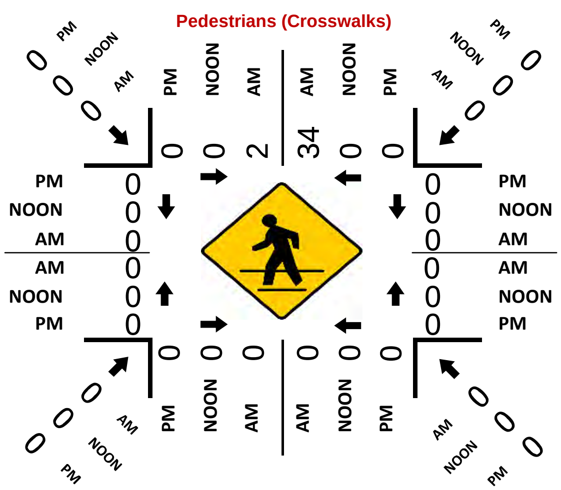
Cars (NOON)



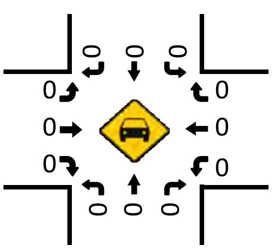
HT (NOON)



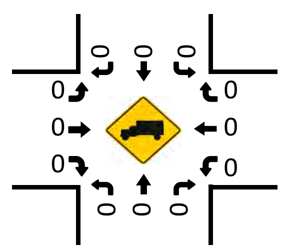
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

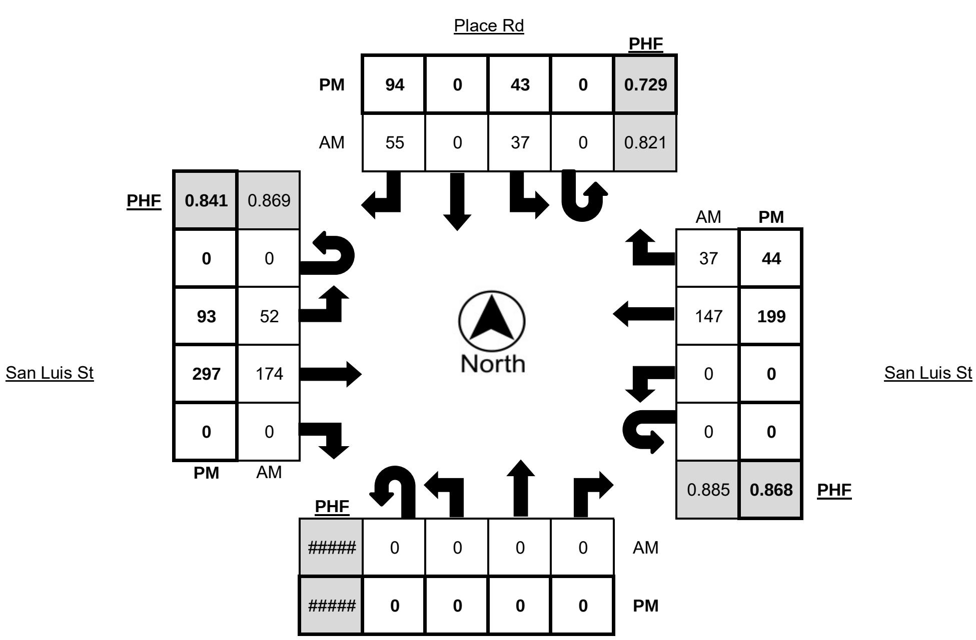
LOCATION	Place Rd @ San Luis St	**LATITUDE**	37.0617
COUNTY	Merced	**LONGITUDE**	-120.8265
COLLECTION DATE	Thursday, April 13, 2023	**WEATHER**	Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:00 AM - 11:15 AM	0	0	0	0	0	0	8	0	9	0	0	9	35	1	0	0	0	38	7	0
11:15 AM - 11:30 AM	0	0	0	0	0	0	3	0	9	0	0	13	28	0	0	0	0	39	7	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	5	0	13	0	0	9	38	0	0	0	0	28	11	0
11:45 AM - 12:00 PM	0	0	0	0	0	0	11	0	15	0	0	12	44	0	0	0	0	37	9	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	7	0	11	1	0	10	41	0	0	0	0	40	9	0
12:15 PM - 12:30 PM	0	0	0	0	0	0	13	0	15	1	0	16	38	0	1	0	0	39	13	1
12:30 PM - 12:45 PM	0	0	0	0	0	0	6	0	14	2	0	14	51	0	0	0	0	31	6	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	8	0	12	0	0	12	31	0	1	0	0	37	8	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**61**	**0**	**98**	**4**	**0**	**95**	**306**	**1**	**2**	**0**	**0**	**289**	**70**	**1**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	0	0	0	0	13	0	34	1	0	27	89	0	0	0	0	54	16	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	11	0	22	0	0	22	71	0	1	0	0	43	16	1
4:30 PM - 4:45 PM	0	0	0	0	0	0	11	0	20	0	0	17	72	0	1	0	0	57	5	1
4:45 PM - 5:00 PM	0	0	0	0	0	0	8	0	18	1	0	27	65	0	0	0	0	45	7	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	6	0	23	0	0	22	64	0	0	0	0	38	14	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	20	0	13	0	0	16	67	0	0	0	0	33	17	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	11	0	24	0	0	25	56	0	0	0	0	42	13	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	18	0	23	0	0	24	59	0	0	0	0	36	11	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**98**	**0**	**177**	**2**	**0**	**180**	**543**	**0**	**2**	**0**	**0**	**348**	**99**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:45 AM - 12:45 PM	0	0	0	0	0	0	37	0	55	4	0	52	174	0	1	0	0	147	37	1
4:00 PM - 5:00 PM	0	0	0	0	0	0	43	0	94	2	0	93	297	0	2	0	0	199	44	2

	PHF	Trucks
AM	0.937	1.2%
PM	0.826	0.8%



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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

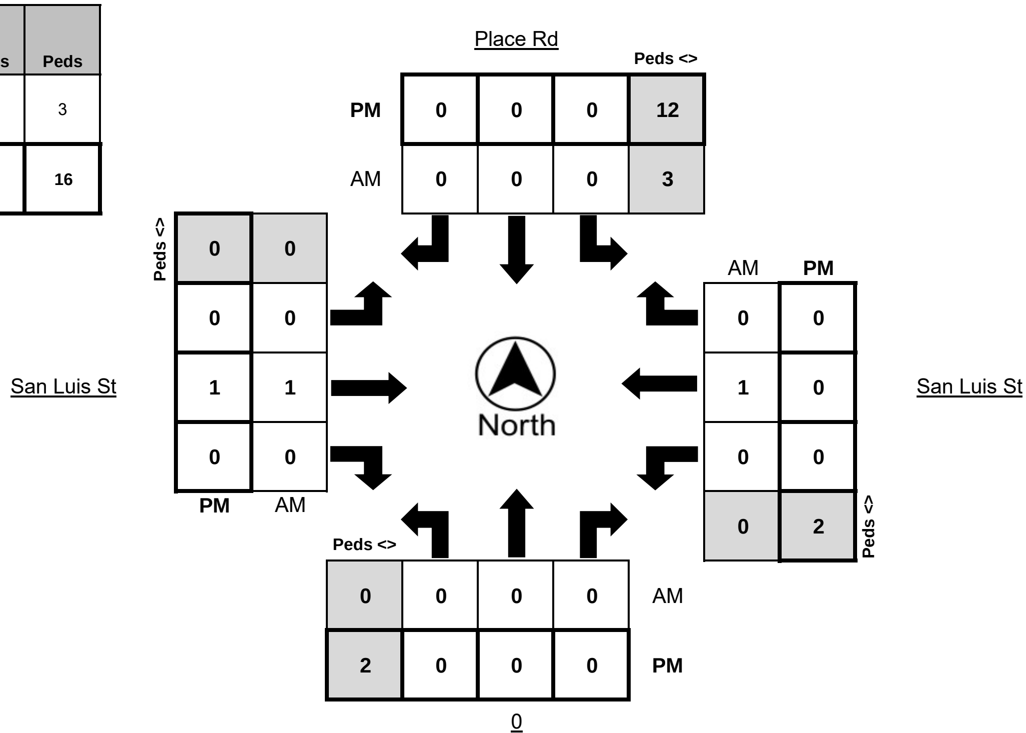
LOCATION	Place Rd @ San Luis St	**LATITUDE**	37.0617
COUNTY	Merced	**LONGITUDE**	-120.8265
COLLECTION DATE	Thursday, April 13, 2023	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
11:45 AM - 12:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM - 12:30 PM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:45 AM - 12:45 PM	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0
4:00 PM - 5:00 PM	0	0	0	12	0	0	0	2	0	1	0	2	0	0	0	0

	Bikes	Peds
AM Peak Total	2	3
PM Peak Total	1	16



Prepared by National Data & Surveying Services

Miller Ln & SR 33/SR 152/E Pacheco Blvd

Peak Hour Turning Movement Count

ID: 23-090015-009
City: Los Banos

Day: Tuesday
Date: 1/24/2023

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	NONE	NONE

SOUTHBOUND (Miller Ln)

	Right	Thru	Left	U-Turn	Departure
AM	172	0	69	0	118
NOON	0	0	0	0	0
PM	0	0	0	0	0

EASTBOUND (SR 33/SR 152/E Pacheco Blvd)

	AM	NOON	PM
Departure	1147	0	0
U-Turn	0	0	0
Left	86	0	0
Thru	586	0	0
Right	2	0	0

WESTBOUND (SR 33/SR 152/E Pacheco Blvd)

	PM	NOON	AM
Right	0	0	32
Thru	0	0	973
Left	0	0	0
U-Turn	0	0	0
Departure	0	0	655

NORTHBOUND (Miller Ln)

	Departure	U-Turn	Left	Thru	Right
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	2	0	2	0	0

CONTROL

Signalized

	AM	NOON	PM
TEV	1922	0	0
PHF	0.93		

Cars (AM)

Approach	Movements
Southbound	164, 0, 67
Eastbound	86, 524, 1
Westbound	31, 849, 0
Northbound	2, 0, 0

HT (AM)

Approach	Movements
Southbound	8, 0, 2
Eastbound	0, 62, 1
Westbound	1, 124, 0
Northbound	0, 0, 0

Cars (NOON)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

HT (NOON)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

Cars (PM)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

HT (PM)

Approach	Movements
Southbound	0, 0, 0
Eastbound	0, 0, 0
Westbound	0, 0, 0
Northbound	0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	2	0	0
North	Westbound	0	0	0
South	Eastbound	0	0	0
South	Westbound	1	0	0
West	Southbound	0	0	0
West	Northbound	0	0	0
East	Southbound	0	0	0
East	Northbound	0	0	0
Northwest diagonal		0	0	0
Northeast diagonal		0	0	0
Southwest diagonal		0	0	0
Southeast diagonal		0	0	0

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Turning Movement Report

Prepared For:
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Fresno, CA 93704

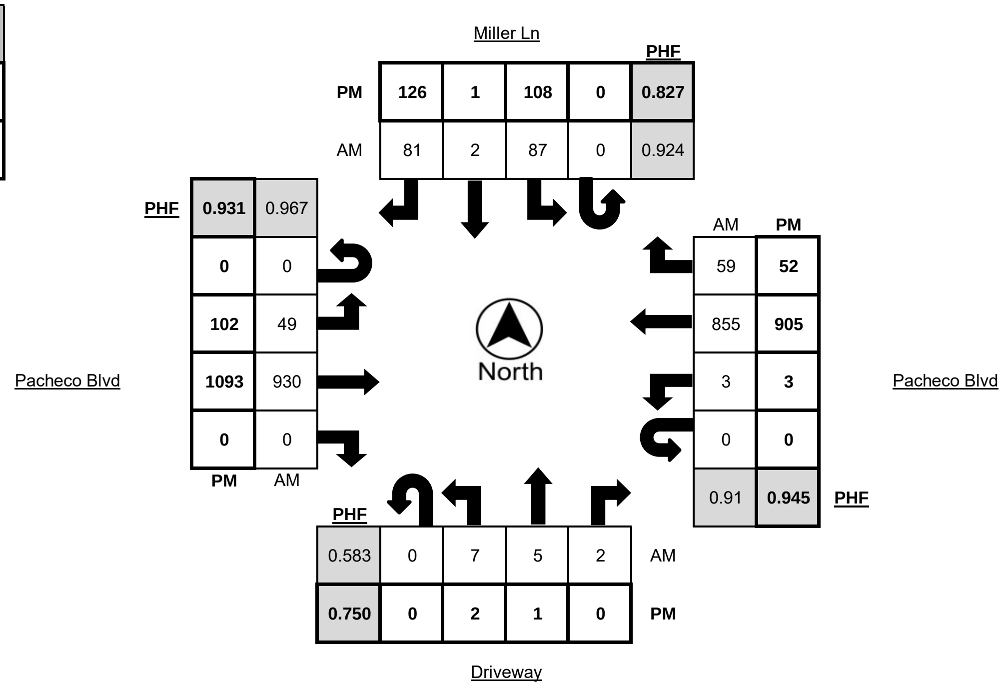
LOCATION Miller Ln @ Pacheco Blvd
LATITUDE 37.0570
COUNTY Merced
LONGITUDE -120.8291
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
11:00 AM - 11:15 AM	0	0	0	0	0	0	8	0	15	0	0	10	180	0	27	0	0	232	3	24
11:15 AM - 11:30 AM	0	1	0	0	0	0	9	0	24	0	0	11	194	0	23	0	0	208	10	31
11:30 AM - 11:45 AM	0	1	0	0	0	0	15	1	14	0	0	6	210	0	19	0	1	201	3	22
11:45 AM - 12:00 PM	0	0	0	2	0	0	19	0	25	1	0	10	155	0	13	0	1	213	8	17
12:00 PM - 12:15 PM	0	3	0	0	0	0	26	1	14	0	0	11	228	0	25	0	2	207	21	20
12:15 PM - 12:30 PM	0	0	5	0	0	0	20	0	24	1	0	13	224	0	24	0	1	208	18	26
12:30 PM - 12:45 PM	0	0	0	0	0	0	19	0	27	1	0	9	244	0	22	0	0	195	13	23
12:45 PM - 1:00 PM	0	4	0	2	0	0	22	1	16	0	0	16	234	0	30	0	0	245	7	27
TOTAL	**0**	**9**	**5**	**4**	**0**	**0**	**138**	**3**	**159**	**3**	**0**	**86**	**1669**	**0**	**183**	**0**	**5**	**1709**	**83**	**190**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	1	0	0	0	0	39	1	31	2	0	27	242	0	23	0	1	225	11	19
4:15 PM - 4:30 PM	0	1	0	0	0	0	21	0	33	0	0	25	296	0	16	0	0	238	16	15
4:30 PM - 4:45 PM	0	0	0	0	0	0	28	0	29	0	0	25	289	0	21	0	2	218	11	16
4:45 PM - 5:00 PM	0	0	1	0	0	0	20	0	33	0	0	25	266	0	23	0	0	224	14	20
5:00 PM - 5:15 PM	0	1	0	0	0	0	30	1	23	0	0	16	255	1	18	0	0	197	12	16
5:15 PM - 5:30 PM	0	0	0	1	0	0	17	0	21	1	0	36	265	0	12	0	2	201	13	13
5:30 PM - 5:45 PM	0	1	0	1	0	0	16	0	29	0	0	29	282	0	17	0	0	172	13	11
5:45 PM - 6:00 PM	0	2	0	1	0	0	22	0	30	0	0	30	230	0	10	0	1	204	19	8
TOTAL	**0**	**6**	**1**	**3**	**0**	**0**	**193**	**2**	**229**	**3**	**0**	**213**	**2125**	**1**	**140**	**0**	**6**	**1679**	**109**	**118**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
12:00 PM - 1:00 PM	0	7	5	2	0	0	87	2	81	2	0	49	930	0	101	0	3	855	59	96
4:00 PM - 5:00 PM	0	2	1	0	0	0	108	1	126	2	0	102	1093	0	83	0	3	905	52	70

	PHF	Trucks
AM	0.951	9.6%
PM	0.950	6.5%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

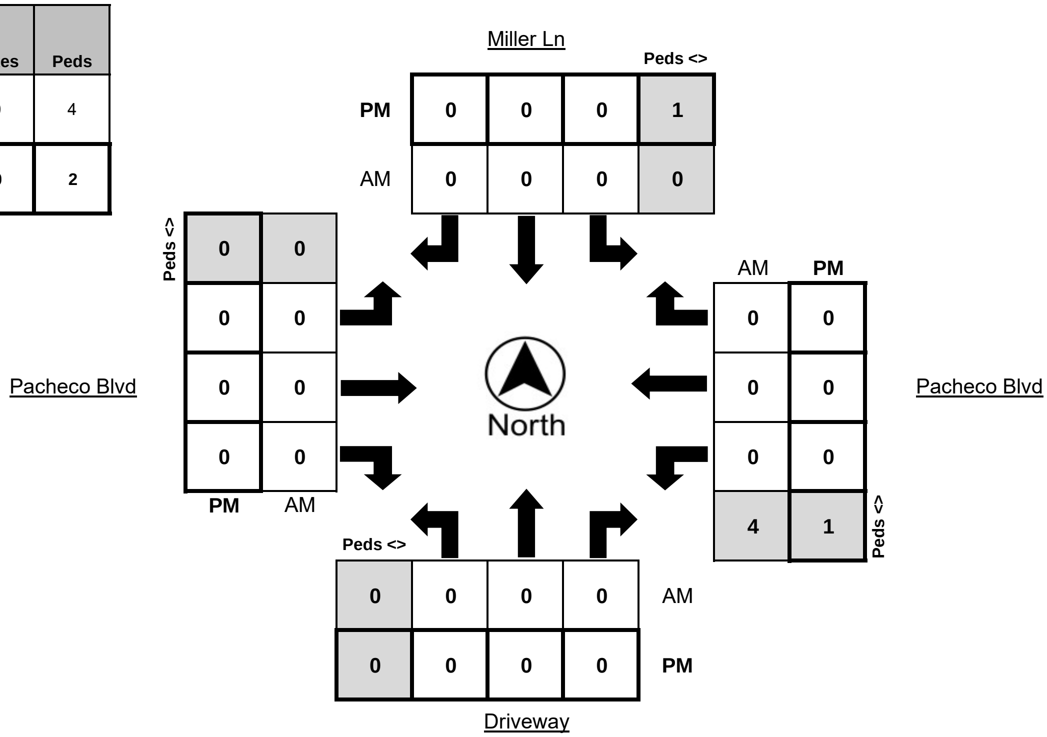
LOCATION Miller Ln @ Pacheco Blvd
LATITUDE 37.0570
COUNTY Merced
LONGITUDE -120.8291
COLLECTION DATE Thursday, April 13, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
11:00 AM - 11:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM - 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM - 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM - 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM - 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
12:15 PM - 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
12:30 PM - 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
12:00 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0

	Bikes	Peds
AM Peak Total	0	4
PM Peak Total	0	2



Appendix C: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 6th Edition represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish an LOS.

Intersection Levels of Service

One of the more important elements limiting and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop signs and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections, the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay and bicycle perception score. LOS is also considered a performance measure. For the automobile mode, the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. An LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-1.

Table A-1: Signalized Intersection Levels of Service Description (Automobile Mode)

Level of Service	***Description***	***Average Control Delay (Seconds per Vehicle)***
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is really low and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0, the progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80

Note: Source: Highway Capacity Manual 6th Edition

Unsignalized Intersections

The HCM 6th Edition procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i.e., in the absence of traffic control, geometric delay, any incidents and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections are a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words, the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. An LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred to as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. An LOS for a TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-2 provides a description of LOS at unsignalized intersections.

Table A-2: Unsignalized Intersection Levels of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 20-2.

Roundabout Controlled Intersections

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island. Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990. The procedure used to calculate LOS incorporates a combination of lane-based regression models and gap acceptance models for both single-lane and multi-lane roundabouts. As a result, the capacity models focus on one entry of a roundabout at a time. Table A-3 provides a description of LOS at roundabout intersections.

Table A-3: Roundabout Intersection Level of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 22-8.

Segment Levels of Service

Segments are portions of roads without any interruption of flow. These are typically studied as urban streets, basic freeways, multilane highways or two-lane highways. Each of these categories has further classification and the level of service analysis can differ between them.

Basic Freeway and Multilane Highway Segments

For segments of multilane highways and basic freeways outside the influence of merging, diverging and weaving maneuvers, LOS is defined by density. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Chapter 12 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are still easily absorbed.

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.

LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.

Basic Freeway

Basic Freeway segments generally have four to eight lanes and posted speed limits between 50 and 75 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, total ramp density, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Basic Freeway Segments.

Multilane Highway

Multilane Highway segments generally have four to six lanes and posted speed limits between 40 and 55 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, left side lateral clearance, access point density, terrain type, median type, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Multilane Highway Segments.

Table A-4: Basic Freeway and Multilane Highway Segment Level of Service Description

Level of Service	*Density (Passenger Cars per Mile per Lane)*
A	≤11
B	>11 to 18
C	>18 to 26
D	>26 to 35
E	>35 to 45
F	>45 or Demand Exceeds Capacity

Note: Source: HCM 6th Edition, Exhibit 12-15.

Two-Lane Highway Segments

Two-Lane Highways generally have one lane per direction and only allow passing maneuvers to take place in the opposing lane of traffic. If allowed, passing maneuvers are limited by the availability of gaps in the opposing traffic stream and by the availability of sufficient sight distance for a driver to discern the approach of an opposing vehicle safely. A principal measure of LOS is percent time spent following and follower density. This is the average percent of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Chapter 15 of the Highway Capacity Manual categorizes each LOS as follows:

At **LOS A**, motorists experience high operating speeds on Class I highways and little difficulty in passing. Platoons of three or more vehicles are rare. On Class II highways, speed is controlled primarily by roadway conditions, but a small amount of platooning would be expected. On Class III highways, motorists can maintain operating speeds at or near the facility's FFS.

At **LOS B**, passing demand and passing capacity are balanced. On both Class I and Class II highways, the degree of platooning becomes noticeable. Some speed reductions are present on Class I highways. On Class III highways, maintenance of FFS operation becomes difficult, but the speed reduction is still relatively small.

At **LOS C**, most vehicles travel in platoons. Speeds are noticeably curtailed on all three classes of highways.

At **LOS D**, platooning increases significantly. Passing demand is high on both Class I and Class II facilities, but passing capacity approaches zero. A high percentage of vehicles travels in platoons, and PTSF is noticeable. On Class III highways, the fall-off from FFS is significant.

At **LOS E**, demand is approaching capacity. Passing on Class I and II highways is virtually impossible, and PTSF is more than 80%. Speeds are seriously curtailed. On Class III highways, speed is less than two-thirds of the FFS. The lower limit of LOSE represents capacity.

LOS F exists whenever demand flow in one or both directions exceeds the segment's capacity. Operating conditions are unstable and heavy congestion exists on all classes of two-lane highways.

Two-Lane Highway

The performance measures include average travel speed, segment travel time, percent followers, volume to capacity ratio, follower density and LOS. The LOS is dependent on Highway Class (I, II, or III), lane width, shoulder width, access point density, terrain type, free flow speed, passing lane length, demand flow rate, opposing demand flow rate peak hour factor and total truck percentage. Tables A-5 and A-6 provide a description of LOS for Two-Lane Highway Segments.

Table A-5: Two-Lane Highway Segment Level of Service Description

LOS	*Class I Highways*		*Class II Highways*	*Class III Highways*
	ATS (Mile per Hour)	*PTSF (%)*	*PTSF (%)*	*PFFS (%)*
A	>55	≤35	≤40	>91.7
B	>50 to 55	>35 to 50	>40 to 55	>83.3 to 91.7
C	>45 to 50	>50 to 65	>55 to 70	>75.0 to 83.3
D	>40 to 45	>65 to 80	>70 to 85	>66.7 to 75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: ATS = Average Travel Speed
PTSF = Percent Time Spent Following
PFFS = Percent of Free Flow Speed
Source: HCM 6th Edition, Exhibit 15-3.

Table A-6: Two-Lane Highway Segment Level of Service Description

LOS	*Follower Density (Followers per Mile per Lane)*	
	High Speed Highways Posted Speed Limit ≥ 50 miles per hour	*High Speed Highways Posted Speed Limit < 50 miles per hour*
A	≤2.0	≤2.0
B	>2.0 to 4.0	>2.5 to 5.0
C	>4.0 to 8.0	>5.0 to 10.0
D	>8.0 to 12.0	>10.0 to 15.0
E	>12.0	>15.0

Note: Source: NCHRP 'Improved Analysis of Two-Lane Highway Capacity and Operational Performance, Table 3-23.

Urban Streets (Automobile Mode)

The term “urban streets” refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials.

They not only move through traffic but also provide access to local businesses for passenger cars, transit buses and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) force a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Urban Street Segments LOS

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections. Table A-7 provides a description of LOS for Urban Street Segments.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 80 percent of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 80 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes or inappropriate signal timing at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized as an unstable operation and has significant delay. Such operations may be due to some combination of adverse progression, high volume and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-7: Urban Street Levels of Service (Automobile Mode)

LOS	*Travel Speed Threshold by Base Free-Flow Speed (miles/hour)*							*Volume-to-Capacity Ratio*
	55	**50**	**45**	**40**	**35**	**30**	**25**	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Note: a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 6th Edition, Exhibit 16-3.

Appendix D: Collision Data

Intersection Collision Data Year 2020 to 2022

ID	Intersection	Number of Collisions	Type of Collision						Severity					Type of Violation								Involved With…		
			Broadside	Rear End	Head-On	Hit Object	Sideswipe	Other	Fatal	Severe Injury	Other Visible Injury	Complaint of Pain Injury	Property Damage Only	Traffic Signals & Signs	Right of Way	Unsafe Speed	Improper Turning	Driving Under Influence	Too Close	Pedestrian Violation	Other	Pedestrian / Bicyclist	Other Motor Vehicle	Fixed Object / Other
1	Mercey Springs Road (SR 165) / B Street	8	1	5	-	2	-	-	-	-	1	4	3	1	-	3	2	1	1	-	-	-	6	2
2	Las Palmas / B Street	2	-	1	-	-	-	1	-	-	1	-	1	-	-	-	1	-	-	1	-	1	1	-
3	Place Road / B Street	4	1	2	-	-	1	-	-	-	1	-	3	2	-	1	-	-	-	-	1	-	4	-
4	Place Road / Project Driveway 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Mercey Springs Road (SR 165) / San Luis	7	3	1	-	-	3	-	-	-	1	-	6	-	2	2	1	1	-	-	1	-	7	-
6	Miller Lane / San Luis Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Place Road / San Luis Street	1	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	1
8	Miller Lane / Pacheco Boulevard (SR 152)	18	2	7	2	2	3	2	-	1	4	5	8	2	2	5	4	2	1	1	1	1	15	2

Primary Rd **E PACHECO BL** *Distance (ft)* **20.0** *Direction* **E** *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.290** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD55** *Collision Date* **20201004** *Time* **1813** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210609**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	53	M	H	HNBD		CHANG LN	W	A	0700	-	2011	- 3	N		-	M G	PASS	MINOR	40	F	3	0	M	G
																		PASS		5	M	4	0	M	Q
2	DRVR	40	M	H	HNBD		PROC ST	W	D	2200	FORD	2012	- 3	N		-	M G	PASS		14	F	3	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **30.0** *Direction* **E** *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.290** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD143** *Collision Date* **20201128** *Time* **1423** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	40	F	H	HNBD		SLOWING	W	A	0100	-	2009	- 3	N		-	M G								
2	DRVR	52	M	H	HNBD		STOPPED	W	D	2200	-	2012	- 3	N		-	M -	PASS	MINOR	48	F	3	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **365.** *Direction* **E** *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.350** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD143** *Collision Date* **20201129** *Time* **1237** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **4** *Tow Away?* **N** *Process Date* **20220223**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	W	-	9900	-		- 3	A	22350	-	B -	DRVR	POSSIBL	998	-	1	3	B	-
2	DRVR	70	M	H	HNBD		STOPPED	W	D	2200	FORD	2003	- 3	N		-	M G	DRVR	MINOR	70	M	1	0	M	G
																		PASS	POSSIBL	62	F	3	0	M	G
3	DRVR	49	M		HNBD		STOPPED	W	A	0100	AUDI	2013	- 3	N		-	M G	DRVR	MINOR	49	M	1	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **845.** *Direction* **W** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD126** *Collision Date* **20200208** *Time* **2335** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20201023**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK		-	-	0000	-		- 3	-		-	- B								
2	DRVR	34	M	H	IMP UNK	IMP UNK	LFT TURN	E	A	0100	-	2015	- 3	N		-	M G	PASS		20	M	6	0	M	G
																		PASS	POSSIBL	30	M	4	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.610** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD133** *Collision Date* **20200507** *Time* **1654** *Day* **THU**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20210128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	32	M	H	HNBD		PROC ST	W	A	0700	-	2012	- 3	N		-	L G	DRVR	MINOR	32	M	1	0	L	G

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																			PASS	MINOR	12	F	3	0	L	G
2	DRVR	25	M	H	HNBD		LFT TURN	-	A	0100	-	2013	- 3	N		-	L	G	DRVR	MINOR	25	M	1	0	L	G

Primary Rd E PACHECO BL *Distance (ft)* 177. *Direction* E *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 3 *Beat* 0B3 *Type* 0 *CalTrans* *Badge* PD42 *Collision Date* 20200606 *Time* 0156 *Day* SAT
Primary Collision Factor DRVR ALC|DRG *Violation* 23152A *Collision Type* HIT OBJECT *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* Y *Process Date* 20210217
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* FIXED OBJ *Lighting* DARK - ST *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	F	H	HBD-UI		PROC ST	W	A	0100	-	2015	- 1	A	22107	-	M	G								

Primary Rd E PACHECO BL *Distance (ft)* 80.0 *Direction* E *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.630 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD47 *Collision Date* 20200726 *Time* 1622 *Day* SUN
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20210301
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK		W	D	2200	-		- 3	N		-	B	-								
2	DRVR	46	F		HNBD		SLOWING	W	A	0100	-	2007	- 3	N		-	M	G	PASS		11	F	6	0	P	G

Primary Rd E PACHECO BL *Distance (ft)* 64.0 *Direction* E *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.630 *Side of Hwy* E
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B3 *Type* 0 *CalTrans* 10 *Badge* PD45 *Collision Date* 20200831 *Time* 1610 *Day* MON
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20210222
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	81	F	H	HNBD		PROC ST	E	A	0700	-	2017	- 3	-		-	M	G	PASS		79	F	3	0	M	G
2	DRVR	34	F	W	HNBD		STOPPED	E	A	0700	JEEP	2017	- 3	N		-	M	G	DRVR	POSSIBL	34	F	1	0	M	G
3	DRVR	45	M	W	HNBD		STOPPED	E	A	0100	-	2016	- 3	-		-	M	G								

Primary Rd E PACHECO BL *Distance (ft)* 75.0 *Direction* E *Secondary Rd* RANCHO DR *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 22.080 *Side of Hwy* E
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 3 *Beat* 0B3 *Type* 0 *CalTrans* 10 *Badge* PD45 *Collision Date* 20201120 *Time* 1734 *Day* FRI
Primary Collision Factor NOT DRIVER *Violation* *Collision Type* AUTO/PED *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20220218
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* PED *Lighting* DARK - ST *Ped Action* NOT IN X- *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	PED	52	M	H	IMP UNK	IMP UNK		N	N	6000	-		- 3	N		-	-	-	PED	MINOR	52	M	-	0	P	-
2	DRVR	55	F	H	HNBD		CHANG LN	E	A	0100	-	2003	- 3	N		-	M	G								

Primary Rd E PACHECO BL *Distance (ft)* 130. *Direction* E *Secondary Rd* RT 152 *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 20.460 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 1 *Beat* 0B1 *Type* 0 *CalTrans* 10 *Badge* PD21 *Collision Date* 20200603 *Time* 0959 *Day* WED
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* OTHER *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20210223
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* BICYCLE *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	40	F	H	HNBD			W	-	0000	-	2014	- 3	N		-	L	G								
2F	BICY	40	M	H	HNBD			W	L	0400	-		- 3	N		-	-	-								

Primary Rd E ST | Distance (ft) 172. | Direction E | Secondary Rd 2ND ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 1 | Beat 0B1 | Type 0 | CalTrans | Badge PD13 | Collision Date 20200327 | Time 1358 | Day FRI
Primary Collision Factor NOT STATED | Violation | Collision Type SIDESWIPE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20201031
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	38	M	H	HNBD		PROC ST	W	D	7200	FORD	1996	-	3	N		-	M	G							
2	DRVR	28	M	H	HNBD		PROC ST	W	A	0100	-	2015	-	3	N		-	M	G							

Primary Rd E. B ST. E/B | Distance (ft) 0.00 | Direction | Secondary Rd SANTA ANA ST | NCIC 9461 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist | Beat 901 | Type 2 | CalTrans | Badge 021056 | Collision Date 20200724 | Time 1530 | Day FRI
Primary Collision Factor IMPROP PASS | Violation 21755 | Collision Type SIDESWIPE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20200730
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	30	M	H	HNBD		PROC ST	E	A	0100	NISSA	1996	-	3	N		-	M	G							
2	DRVR	32	M	W	HNBD		ROT TURN	E	J	4800	DODGE	2018	-	3	N		-	M	G							

Primary Rd EAST B ST | Distance (ft) 0.00 | Direction | Secondary Rd PLACE RD | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD18 | Collision Date 20200811 | Time 1643 | Day TUE
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210217
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	F	W	IMP UNK	IMP UNK	PROC ST	W	A	0100	-	2016	-	3	N		-	M	B							
2	DRVR	64	M	O			STOPPED	W	A	0100	-	2014	-	3	N		-	M	G							

Primary Rd EAST B ST | Distance (ft) 92.0 | Direction W | Secondary Rd SANTA ANA ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD53 | Collision Date 20201118 | Time 0842 | Day WED
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20220225
Weather1 RAINING | Weather2 | Rdwy Surface WET | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With PKD MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	45	M	H	IMP UNK	IMP UNK	RAN OFF RD	W	A	0100	-	2007	-	3	N		-	L	B							
2	PRKD	998	-				PARKED	-	A	0100	-	2016	-	-	-		-	-	-							

Primary Rd EAST B ST | Distance (ft) 0.00 | Direction | Secondary Rd WARD RD | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD46 | Collision Date 20201016 | Time 0540 | Day FRI
Primary Collision Factor R-O-W AUTO | Violation 21800B | Collision Type BROADSIDE | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20210602
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	34	M	H	HNBD		LFT TURN	W	A	0100	-	2013	-	3	N		-	M	B	DRVR	COMP PN	34	M	1	0	M	B
2	DRVR	33	M	H	HNBD		PROC ST	S	D	2200	FORD	2003	-	3	N		-	M	B							

Primary Rd KENSINGTON CIR | Distance (ft) 0.00 | Direction | Secondary Rd CARDINAL ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B4/2 | Type 0 | CalTrans | Badge PD44 | Collision Date 20200712 | Time 1900 | Day SUN
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210216
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With PKD MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	22	M	H	HNBD			E	A	0100	-	2011	- 3	F		-	M B								
2	PRKD	998	-				PARKED	-	A	0100	-	2011	- -	-		-	- -								

Primary Rd L ST | Distance (ft) 0.00 | Direction | Secondary Rd 4TH ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 1 | Beat 0B1 | Type 0 | CalTrans | Badge PD133 | Collision Date 20201212 | Time 1505 | Day SAT
Primary Collision Factor R-O-W AUTO | Violation 21802A | Collision Type BROADSIDE | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20210804
Weather1 CLOUDY | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	F	H	HNBD		PROC ST	W	A	0100	-	2009	- 3	N		-	M G	PASS		18	M	3	0	M	G
2	DRVR	38	F	H	HNBD		PROC ST	S	A	0100	-	2015	- 3	N		-	L G	DRVR	OTH VIS	38	F	1	0	L	G

Primary Rd LAS PALMAS ST | Distance (ft) 177. | Direction N | Secondary Rd EAST B ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD39 | Collision Date 20201124 | Time 0051 | Day TUE
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20220218
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	34	M	H	IMP UNK	IMP UNK	PROC ST	S	D	2200	-	1992	- 3	F		-	M B								
2	PRKD	998	-				PARKED	S	E	2235	FORD	2000	- 3	N		-	- -								
3	PRKD	998	-				PARKED	S	A	0700	-	2008	- 3	N		-	- -								

Primary Rd LAURELWOOD DR | Distance (ft) 47.0 | Direction W | Secondary Rd SANTA VENETIA | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B4 2 | Type 0 | CalTrans | Badge PD13 | Collision Date 20200223 | Time 1436 | Day SUN
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20200608
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With PKD MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	H	HNBD		UNS TURN	W	A	0100	TOYOT	2009	- 3	N		-	L G								
2	PRKD	998	-				PARKED	-	A	0800	HONDA	2019	- -	-		-	- -								

Primary Rd MARYLAND AV | Distance (ft) 47.0 | Direction N | Secondary Rd RT 152 | NCIC 2405 | State Hwy? Y | Route 152 | Postmile Prefix - | Postmile 19.781 | Side of Hwy W
City Los Banos | County Merced | Population 3 | Rpt Dist 1 | Beat 0B1 | Type 0 | CalTrans 10 | Badge PD57 | Collision Date 20201209 | Time 1719 | Day WED
Primary Collision Factor R-O-W AUTO | Violation 21804A | Collision Type BROADSIDE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210928
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type I | Ramp/Int 6

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	32	F	H	HNBD		ENT TRAF	N	A	0100	-	1996	- 3	N		-	M -								
2	DRVR	59	F	H	HNBD		PROC ST	N	D	7300	-	2017	- 3	N		-	M -								

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **E B ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Baños** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD54** *Collision Date* **20200827** *Time* **1027** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **N** *Process Date* **20210227**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	F	B	HNBD		PROC ST	S	A	0100	-	2018	-	3	N	-	M	E
2	DRVR	39	F	H	HNBD		STOPPED	S	A	0100	-	2015	-	3	N	-	M	E

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	POSSIBL	39	F	1	0	M	E
PASS	POSSIBL	4	F	4	0	M	Q
PASS		5	F	6	0	M	Q

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **E B ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Baños** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD53** *Collision Date* **20200920** *Time* **1209** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210217**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	RGT TURN	S	-	9900	-	-		3	N	-	-	B

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	POSSIBL	998	-	1	3	-	B

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **E PACHECO BL** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.950** *Side of Hwy* **N**
City **Los Baños** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD42** *Collision Date* **20200806** *Time* **1252** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20210301**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	81	M	W	HNBD		ENT TRAF	W	A	0700	-	2018	-	3	N	-	L	G
2	DRVR	64	M	W	HNBD		PROC ST	S	G	2533	-	2021	-	3	N	-	M	G
3	DRVR	58	M	W	HNBD		PROC ST	N	G	2531	-	2018	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		81	F	3	0	M	G

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **G ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.020** *Side of Hwy* **S**
City **Los Baños** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD19** *Collision Date* **20200514** *Time* **1700** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20210126**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	37	M	H	HNBD			S	C	0200	-	2009	-	3	N	-	P	W
2	DRVR	44	F	H	HNBD			N	-	0000	DODGE	2014	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	37	M	1	1	P	W

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **100.** *Direction* **N** *Secondary Rd* **G ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.040** *Side of Hwy* **S**
City **Los Baños** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD18** *Collision Date* **20200908** *Time* **2014** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210301**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK		-	-	9900	-		-	3	N	-	B	-
2	DRVR	25	F	B	HNBD		STOPPED	N	A	0100	-	2007	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	MINOR	25	F	1	0	M	G

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
2	DRVR	32	M	B	HNBD		PROC ST	N	C	0200	-	2009	- 3	N		-	P W	DRVR	POSSIBL	32	M	1	1	P	W

Primary Rd MERCY SPRING RD *Distance (ft)* 75.0 *Direction* N *Secondary Rd* B ST *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.490 *Side of Hwy* S
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD32 *Collision Date* 20200226 *Time* 1350 *Day* WED
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20200925
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT FNCT *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	W	HNBD		PROC ST	S	A	0100	HONDA	2017	- 1	F		-	M G								
2	DRVR	61	M	W	HNBD		STOPPED	S	D	7200	FORD	2014	- 3	N		-	M G								

Primary Rd MERCY SPRINGS *Distance (ft)* 250. *Direction* N *Secondary Rd* OVERLAND AV *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.980 *Side of Hwy* N
City Los Banos RD *County* Merced *Population* 3 *Rpt Dist* 6 *Beat* 0B4 *Type* 0 *CalTrans* 10 *Badge* PD29 *Collision Date* 20200123 *Time* 1803 *Day* THU
Primary Collision Factor R-O-W AUTO *Violation* 21804A *Collision Type* BROADSIDE *Severity* INJURY *#Killed* 0 *#Injured* 2 *Tow Away?* Y *Process Date* 20200925
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DARK - ST *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	25	F	H	HNBD		RGT TURN	W	A	0100	HYUND	2008	- 3	N		-	M G	DRVR	POSSIBL	25	F	1	0	M	G
2	DRVR	59	F	W	HNBD		PROC ST	N	A	0100	PONTI	2003	- 3	N		-	L G	DRVR	POSSIBL	59	F	1	0	L	G

Primary Rd MERCY SPRINGS *Distance (ft)* 238. *Direction* N *Secondary Rd* OVERLAND RD *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.990 *Side of Hwy* N
City Los Banos RD *County* Merced *Population* 3 *Rpt Dist* 6 *Beat* B4/2 *Type* 0 *CalTrans* 10 *Badge* PD21 *Collision Date* 20200716 *Time* 0503 *Day* THU
Primary Collision Factor R-O-W AUTO *Violation* 21804 *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20210305
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* OTHER MV *Lighting* DARK - ST *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	ENT TRAF	W	A	0100	-		- 3	A	21804	-	B -								
2	PRKD	998	-				PARKED	-	A	0100	-	2016	- -	-		-	- -								

Primary Rd MERCY SPRINGS *Distance (ft)* 66.0 *Direction* *Secondary Rd* ROMERO ST *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.330 *Side of Hwy* N
City Los Banos RD *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD42 *Collision Date* 20200214 *Time* 1715 *Day* FRI
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* Y *Process Date* 20200925
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	F	H	HNBD		PROC ST	N	A	0100	NISSA	2009	- 3	N		-	L G								
2	DRVR	35	F	H	HNBD		STOPPED	N	A	0100	KIA	2015	- 3	N		-	M G								
3	DRVR	45	F	W	HNBD		STOPPED	N	A	0100	FORD	2013	- 3	N		-	M G								

Primary Rd MICHELETTI DR *Distance (ft)* 9.00 *Direction* E *Secondary Rd* ORTIGALITA RD *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* *Beat* 0B3 *Type* 0 *CalTrans* *Badge* PD54 *Collision Date* 20201123 *Time* 1535 *Day* MON
Primary Collision Factor R-O-W AUTO *Violation* 21804A *Collision Type* BROADSIDE *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* Y *Process Date* 20220218
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	29	F	H	HNBD		PROC ST	W	A	0100	-	2016	- 3	N		-	L G	DRVR	MINOR	29	F	1	0	L	G
2	DRVR	42	M	H	IMP UNK	IMP UNK	PROC ST	N	A	7100	FORD	2006	- 3	N		-	M G								

Primary Rd MILLER RD | Distance (ft) 26.0 | Direction E | Secondary Rd PACHECO BL | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD126 | Collision Date 20200123 | Time 1946 | Day THU
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type HEAD-ON | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? Y | Process Date 20200226
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	RGT TURN	S	A	0100	LEXUS	1995	- 3	O		-	L	B								
2	DRVR	18	M		HNBD		STOPPED	S	D	2200	FORD	2007	- 3	N		-	M	G								

Primary Rd MILLS DR | Distance (ft) 27.0 | Direction S | Secondary Rd ST PATRICKS DR | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 3 | Beat 0B3 | Type 0 | CalTrans | Badge PD143 | Collision Date 20201225 | Time 0343 | Day FRI
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type HIT OBJECT | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? Y | Process Date 20210914
Weather1 FOG | Weather2 | Rdwy Surface WET | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run FELONY | Motor Vehicle Involved With FIXED OBJ | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	W	A	0100	-	2011	- 3	N		-	M	B								

Primary Rd MURANO ST | Distance (ft) 7.00 | Direction S | Secondary Rd PALERMO DR | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD13 | Collision Date 20200119 | Time 1024 | Day SUN
Primary Collision Factor UNKNOWN | Violation | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20200303
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With PKD MV | Lighting DARK - NO | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	998	-		IMP UNK	IMP UNK	UNS TURN	-	A	0100	-		- 3	N		-	-	B								
2	PRKD	998	-				PARKED	-	A	0100	TOYOT	2009	- -	-		-	-	-								

Primary Rd N 3RD ST | Distance (ft) 0.00 | Direction | Secondary Rd WILLMOTT | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist | Beat | Type 0 | CalTrans | Badge PD53 | Collision Date 20201208 | Time 1001 | Day TUE
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type HIT OBJECT | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210909
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With FIXED OBJ | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	W	HNBD		PROC ST	N	A	0100	-	1997	- 3	M		-	M	G	PASS		37	F	3	0	M	G

Primary Rd N MERCEY SPRINGS | Distance (ft) 0.00 | Direction | Secondary Rd OVERLAND | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B42 | Type 0 | CalTrans | Badge PD55 | Collision Date 20201204 | Time 1742 | Day FRI
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type SIDESWIPE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210804
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	44	M	H	HNBD		CHANG LN	S	A	0100	-	1996	- 3	N		-	M	G	PASS		30	M	3	0	M	G
2	DRVR	35	F	H	HNBD		PROC ST	S	A	0100	-	2017	- 3	N		-	M	G								

Primary Rd RT 152 *Distance (ft)* 0.00 *Direction* *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.620 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD111 *Collision Date* 20200225 *Time* 0420 *Day* TUE
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20200925
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DARK - ST *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	H	HNBD		CHANG LN	W	G	2575	FREIG	2011	- 3	N		-	M G								
2	DRVR	46	M	H	HNBD		PROC ST	W	E	2235	OTHER	2019	- 3	N		-	M G								

Primary Rd RT 152 *Distance (ft)* 325. *Direction* E *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.670 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD35 *Collision Date* 20200518 *Time* 2500 *Day* MON
Primary Collision Factor UNKNOWN *Violation* *Collision Type* SIDESWIPE *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20210126
Weather1 CLOUDY *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	52	F	H	HNBD		PROC ST	W	A	0100	FORD	2010	- 3	N		-	M G	PASS	POSSIBL	88	F	3	0	M	G
2	DRVR	24	M	B	HNBD		SLOWING	W	M	4800		2015	- 3	N		-	F C								

Primary Rd RT 152 *Distance (ft)* 80.0 *Direction* E *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.620 *Side of Hwy* E
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD16 *Collision Date* 20200704 *Time* 1322 *Day* SAT
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20210222
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	21	F	W	HNBD		PROC ST	E	A	0100	-	2014	- 3	N		-	M G								
2	DRVR	31	F	W	HNBD		SLOWING	E	A	0100	-	2016	- 3	N		-	M G	PASS	POSSIBL	34	M	3	0	M	G
																		PASS		6	M	6	-	Q	-
																		PASS		12	F	4	-	Q	-

Primary Rd RT 152 *Distance (ft)* 0.00 *Direction* *Secondary Rd* MILLER LN *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.500 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B3 *Type* 0 *CalTrans* 10 *Badge* PD16 *Collision Date* 20200908 *Time* 0852 *Day* TUE
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20210222
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	23	F	H	HNBD		PROC ST	W	A	0100	-	2000	- 3	N		-	L G								
2	DRVR	21	M	H	HNBD		SLOWING	W	A	0700	-	2008	- 3	N		-	M G	DRVR	POSSIBL	21	M	1	0	M	G

Primary Rd RT 152 *Distance (ft)* 0.00 *Direction* *Secondary Rd* PLACE RD *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.750 *Side of Hwy* E
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 3 *Beat* 0B3 *Type* 0 *CalTrans* 10 *Badge* PD18 *Collision Date* 20200504 *Time* 1847 *Day* MON
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20210127
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DUSK/DAWN *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	60	M	W	HNBD		PROC ST	E	D	2200	-	2002	- 3	F		-	M G								
2	DRVR	36	F	H	HNBD		STOPPED	E	A	0700	-	2019	- 3	N		-	G -								
3	DRVR	59	M	H	HNBD		STOPPED	E	A	0100	-	2001	- 3	N		-	M G								

Primary Rd **SAN LUIS ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.152** *Side of Hwy* **N**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD13** *Collision Date* **20200805** *Time* **1156** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210305**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	21	F	H	HNBD		LFT TURN	W	A	0100	-	2013	- 3	N		-	L	G	DRVR	MINOR	21	F	1	0	L	G
2	DRVR	68	M	H	HNBD		PROC ST	N	A	0100	-	2004	- 3	N		-	M	G	PASS		65	F	3	0	L	G

Primary Rd **SAN LUIS ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MERCY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.152** *Side of Hwy* **N**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD36** *Collision Date* **20200801** *Time* **1437** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210223**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	F	H	HNBD		LFT TURN	W	A	0100	-	2009	- 3	N		-	M	G								
2	DRVR	27	M	H	HNBD		PROC ST	S	A	0100	FORD	2014	- 3	N		-	M	G								

Primary Rd **SAN LUIS ST** *Distance (ft)* **75.0** *Direction* **E** *Secondary Rd* **PARK WARREN DR** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD19** *Collision Date* **20200323** *Time* **1015** *Day* **MON**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20201106**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	50	M	B	HNBD		OTHER	S	A	0100	-	2004	- 3	N		-	M	B								
2	DRVR	66	F	A	HNBD		PROC ST	W	A	0100	-	2012	- 3	-		-	M	G								
3	PRKD	998	-					W	A	0100	-	2017	- -	-		-	-	-								

Primary Rd **SAN RAMON LN** *Distance (ft)* **58.0** *Direction* **W** *Secondary Rd* **LA CRESTA CT** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **6** *Beat* **B42** *Type* **0** *CalTrans* *Badge* **PD44** *Collision Date* **20201011** *Time* **1605** *Day* **SUN**
Primary Collision Factor **OTHER IMPROP DRV** *Violation* **23123A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210525**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	33	M	H	IMP UNK	IMP UNK	PROC ST	W	A	0700	-	2003	- 1	F		-	M	E	PASS		39	F	-	-	-	-
2	PRKD	998	-				PARKED	W	A	0100	-	2015	- -	-		-	-	-	PASS		34	M	-	-	M	-

Primary Rd **SANTA BARBARA** *Distance (ft)* **50.0** *Direction* **W** *Secondary Rd* **RANCHWOOD DR** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **6** *Beat* **B42** *Type* **0** *CalTrans* *Badge* **PD20** *Collision Date* **20201114** *Time* **1100** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	33	M	H	HNBD		LFT TURN	W	A	0700	FORD	2004	- 3	N		-	M	G								
2	PRKD	998	-				PARKED	-	D	2200	-	2002	- -	-		-	-	-								
3	PRKD	998	-				PARKED	-	A	0100	-	2005	- -	-		-	-	-								
4	PRKD	998	-				PARKED	-	A	0100	-	1991	- -	-		-	-	-								

Primary Rd **E B ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD54** *Collision Date* **20210509** *Time* **1823** *Day* **SUN**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20211026**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	RGT TURN	E	A	0700	-		- 3	-		-	B	-
2	DRVR	28	M	H	HNBD		PROC ST	E	A	0100	-	2015	- 3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		25	F	3	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **11TH ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **20.980** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD54** *Collision Date* **20210225** *Time* **1721** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210812**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	29	F	H	IMP UNK	IMP UNK	CHANG LN	E	A	0100	-	2015	- 3	G		-	-	-
2	DRVR	34	M	B	IMP UNK	IMP UNK	CHANG LN	E	A	0100	-	2019	- 3	N		-	M	G
3	DRVR	41	M	H	IMP UNK	IMP UNK	STOPPED	E	A	0100	-	2003	- 3	N		-	M	G
4	DRVR	30	F				STOPPED	E	A	0100	-	2015	- 3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **E PACHECO BL** *Distance (ft)* **113.** *Direction* **W** *Secondary Rd* **11TH ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **20.970** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD148** *Collision Date* **20210714** *Time* **2132** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220310**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	M	H	HNBD		PROC ST	E	G	2732	-	2013	- 3	N		-	M	G
2	DRVR	30	M		HNBD			E	-	0000	-	2015	- 3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		27	F	3	0	M	G
PASS		21	F	7	0	M	P
PASS		4	F	7	0	M	P
PASS		1	F	7	0	M	P

Primary Rd **E PACHECO BL** *Distance (ft)* **136.** *Direction* **W** *Secondary Rd* **13TH ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.150** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD20** *Collision Date* **20210418** *Time* **1420** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20211029**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	60	F	H	HNBD		LFT TURN	E	A	0100	-	1999	- 3	N		-	M	G
2	DRVR	55	M	H	HNBD		LFT TURN	W	A	0700	FORD	2000	- 3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **E PACHECO BL** *Distance (ft)* **817.** *Direction* **E** *Secondary Rd* **MERCY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.430** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD149** *Collision Date* **20210820** *Time* **1216** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	24	M	H	HNBD		STOPPED	W	A	0100	FORD	2014	- 3	N		-	M	G								
2	DRVR	50	M	H	HNBD		STOPPED	W	D	2200	-	2010	- 3	N		-	M	G								

Primary Rd **E PACHECO BL** *Distance (ft)* **927.** *Direction* **E** *Secondary Rd* **MERCY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.450** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD57** *Collision Date* **20211124** *Time* **1736** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220706**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	H	HNBD		PROC ST	W	A	0100	FORD	2002	- 3	N		-	M	-								
2	DRVR	16	M	B	HNBD		STOPPED	W	A	0100	-		- 3	N		-	M	G								
3	DRVR	25	M	W	HNBD		STOPPED	W	D	2200		2013	3	N			M	G								

Primary Rd **E PACHECO BL** *Distance (ft)* **12.0** *Direction* **E** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.610** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2B** *Beat* **002** *Type* **0** *CalTrans* **10** *Badge* **PD21** *Collision Date* **20210510** *Time* **1840** *Day* **MON**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20211101**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	52	F	H	HNBD		PROC ST	E	A	8100	-	2016	- 3	N		-	M	G								
2	DRVR	31	M	H	HNBD		LFT TURN	W	A	7100	-	2015	- 3	N		-	M	-	DRVR	MINOR	31	M	1	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **75.0** *Direction* **E** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.630** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD55** *Collision Date* **20210723** *Time* **1631** *Day* **FRI**
Primary Collision Factor **PED VIOL** *Violation* **21954A** *Collision Type* **AUTO/PED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PED** *Lighting* **DAYLIGHT** *Ped Action* **NOT IN X-** *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	PED	50	M	H				S	N	6000	-		- 3	N		-	-	-	PED	POSSIBL	50	M	-	0	N	P
2	DRVR	42	F	H	HNBD		PROC ST	E	A	0100	-	2016	- 3	N		-	M	G								

Primary Rd **E PACHECO BL** *Distance (ft)* **71.0** *Direction* **E** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.620** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD143** *Collision Date* **20210806** *Time* **1528** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	45	M	W	HNBD		U-TURN	W	D	2200	-	2018	- 3	A	21801	-	G	-								
2	DRVR	24	F	H	HNBD		PROC ST	E	A	0100	-	2017	- 3	N		-	G	-								

Primary Rd **E PACHECO BL** *Distance (ft)* **733.** *Direction* **W** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* *Badge* **PD57** *Collision Date* **20210807** *Time* **0215** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220315**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	21	M	H	IMP UNK	IMP UNK	RAN OFF RD	-	A	0100	-	2015	-	-		-	L	B								

Primary Rd **E PACHECO BL** *Distance (ft)* **134.** *Direction* **W** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.590** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD56** *Collision Date* **20211104** *Time* **1425** *Day* **THU**
Primary Collision Factor **TOO CLOSE** *Violation* **21703** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220706**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	W			SLOWING	W	D	7200	-	1995	- 3	N		-	M	H								
2	DRVR	40	F	H			SLOWING	-	D	7200	-	2007	- 3	N		-	M	G	DRVR	MINOR	40	F	1	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **239.** *Direction* *Secondary Rd* **MILLER RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.670** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD148** *Collision Date* **20210523** *Time* **2051** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20211101**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	W	A	0100	-		- 3	N		-	B	-								
2	DRVR	28	M	H			STOPPED	W	A	0100	-	2012	- 3	G		-	M	G	DRVR	MINOR	28	M	1	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **301.** *Direction* **E** *Secondary Rd* **MILLER RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.670** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD56** *Collision Date* **20210717** *Time* **1443** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **N** *Process Date* **20220218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	36	M	H	HNBD		SLOWING	E	A	0100	-	2006	- 3	N		-	M	G								
2	DRVR	41	F	H	HNBD		SLOWING	E	A	0100	-	2016	- 3	N		-	M	G	DRVR	MINOR	41	F	1	0	M	G
																			PASS	MINOR	8	M	5	0	M	G
3	DRVR	22	F	B	HNBD		SLOWING	E	A	0100	-	2003	- 3	N		-	M	G	DRVR	MINOR	22	F	1	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **13.0** *Direction* **W** *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.761** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD54** *Collision Date* **20210109** *Time* **1814** *Day* **SAT**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20210813**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	64	M	H	HNBD		PROC ST	W	A	0100	-	2005	- 3	N		-	M	G								
2	DRVR	54	M	H	HNBD		LFT TURN	N	A	0100	-	2014	- 3	N		-	L	E	DRVR	POSSIBL	54	M	1	0	L	E
																			PASS	POSSIBL	58	F	3	0	L	E

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	POSSIBL	20	F	3	0	L	G
PASS		1	F	6	0	L	G

Primary Rd **E PACHECO BL** *Distance (ft)* **101.** *Direction* **E** *Secondary Rd* **WARD RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **22.280** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD146** *Collision Date* **20211031** *Time* **0159** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20220701**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	90	M		HNBD		PROC ST	E	A	0100	-	2021	-	3	N	-	L	-	DRVR	MINOR	90	M	1	0	L	G

Primary Rd **EAST B ST** *Distance (ft)* **127.** *Direction* **E** *Secondary Rd* **7TH ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD44** *Collision Date* **20210226** *Time* **1720** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210804**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **OTHER** *Rdwy Cond2* **NO UNUSL CND** *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	H	HNBD		UNS TURN	W	A	0100	-	2005	-	3	M	N	M	E								
2	PRKD	998	-				PARKED	-	A	0300	-	2008	-	-	-	-	-	-								

Primary Rd **EAST B ST** *Distance (ft)* **202.** *Direction* **E** *Secondary Rd* **N MERCEY** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD47** *Collision Date* **20210524** *Time* **0430** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20211026**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	29	M	W	HNBD	FATG	UNS TURN	W	A	0100	JEEP	2007	-	3	N	-	M	G	DRVR	MINOR	29	M	1	0	M	G

Primary Rd **EAST B ST** *Distance (ft)* **42.0** *Direction* **E** *Secondary Rd* **SANTA ROSA** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD56** *Collision Date* **20210815** *Time* **1959** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220315**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	F	W			MERGING	E	A	0100	-	2018	-	3	N	-	M	G								
2	DRVR	23	F	H			PROC ST	E	A	0100	FORD	2014	-	3	N	-	M	G	PASS		44	F	3	0	M	G
																			PASS		54	F	6	0	M	G

Primary Rd **F ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **3RD ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **1** *Beat* **0B1** *Type* **0** *CalTrans* *Badge* **PD47** *Collision Date* **20210908** *Time* **1606** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220316**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	48	F	H	HNBD		PROC ST	N	A	0100	-	2006	-	3	N	-	M	G								
2	DRVR	25	F	H	HNBD		PROC ST	E	A	0100	-	2005	-	3	N	-	M	G								

Primary Rd MERCEY SPRINGS | Distance (ft) 0.00 | Direction | Secondary Rd CANAL FARM LN | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 8.950 | Side of Hwy N
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans 10 | Badge PD54 | Collision Date 20210613 | Time 1754 | Day SUN
Primary Collision Factor R-O-W AUTO | Violation 21802A | Collision Type BROADSIDE | Severity INJURY | #Killed 0 | #Injured 2 | Tow Away? N | Process Date 20220222
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type I | Ramp/Int 5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	31	M	B	IMP UNK	IMP UNK	RGT TURN	N	A	0700	-	2007	-	3	N		-	M	G							
2	DRVR	65	M	H	IMP UNK	IMP UNK	PROC ST	N	D	2200	-	1995	-	3	N		-	L	G	DRVR	POSSIBL	65	M	1	0	L	G
																				PASS	MINOR	62	F	3	0	M	G

Primary Rd MERCEY SPRINGS | Distance (ft) 266. | Direction N | Secondary Rd DE ANZA | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 8.480 | Side of Hwy N
City Los Banos | County Merced | Population 3 | Rpt Dist | Beat 0B3 | Type 0 | CalTrans 10 | Badge PD40 | Collision Date 20210803 | Time 2224 | Day TUE
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type AUTO/PED | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20220324
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With PED | Lighting DARK - NO | Ped Action IN RD, | Cntrl Dev NT PRS/FCTR | Loc Type H | Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	50	M	W	HNBD		PROC ST	N	J	4800	-	2020	-	3	N		-	M	G							
2	PED	31	M	B	IMP UNK	IMP UNK		N	N	6000				3	N		-	-	-	PED	MINOR	31	M	-	0	P	-

Primary Rd MERCEY SPRINGS | Distance (ft) 36.0 | Direction S | Secondary Rd E B ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD143 | Collision Date 20211002 | Time 1003 | Day SAT
Primary Collision Factor TOO CLOSE | Violation 21703 | Collision Type REAR END | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20220727
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	52	M	W	HNBD		PROC ST	N	G	2535	-	2018	-	3	N		-	M	G							
2	DRVR	41	F	H	HNBD		STOPPED	N	D	8200	-	2017	-	3	N		-	M	G	DRVR	POSSIBL	41	F	1	0	M	G
																				PASS		19	M	3	0	M	G

Primary Rd MERCEY SPRINGS | Distance (ft) 92.0 | Direction S | Secondary Rd E PACHECO BL | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD59 | Collision Date 20211106 | Time 0143 | Day SAT
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type HIT OBJECT | Severity INJURY | #Killed 0 | #Injured 2 | Tow Away? Y | Process Date 20220726
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER OBJ | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	H			WRONG WY	S	A	0100	-	1996	-	3	A	22350	-	L	B	DRVR	MINOR	28	M	1	0	L	B
																				PASS	MINOR	34	F	3	0	L	G

Primary Rd MERCEY SPRINGS | Distance (ft) 20.0 | Direction N | Secondary Rd PACHECO BL | NCIC 2405 | State Hwy? Y | Route 152 | Postmile Prefix - | Postmile 21.272 | Side of Hwy W
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans 10 | Badge PD126 | Collision Date 20210625 | Time 2335 | Day FRI
Primary Collision Factor R-O-W AUTO | Violation 21453C | Collision Type AUTO/PED | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20220829
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run FELONY | Motor Vehicle Involved With PED | Lighting DARK - ST | Ped Action X-WLK AT | Cntrl Dev FNCTNG | Loc Type I | Ramp/Int 5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	31	M	B	IMP UNK	IMP UNK	LFT TURN	N	A	0100	-	2010	-	3	A	21950	N	M	B							
2	PED	45	M	W				E	N	6000	-		-	-	-		-	-	-	PED	SERIOUS	45	M	-	0	P	-

Primary Rd MERCEY SPRINGS RD *Distance (ft)* 17.0 *Direction* N *Secondary Rd* RT 52 *NCIC* 2405 *State Hwy?* Y *Route* 152 *Postmile Prefix* - *Postmile* 21.272 *Side of Hwy* W
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD57 *Collision Date* 20211004 *Time* 2020 *Day* MON
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* BROADSIDE *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20220701
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* BICYCLE *Lighting* DARK - ST *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* I *Ramp/Int* 5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	H	HNBD		RGT TURN	N	A	0100	-	2010	- 3	N		-	M G								
2	BICY	24	F	W	HNBD		PROC ST	W	L	0400	-		- 3	N		-	- -	BICY	MINOR	24	F	0	1	P	V

Primary Rd MERCEY SPRINGS RD *Distance (ft)* 0.00 *Direction* N *Secondary Rd* SAN LUIS ST *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.200 *Side of Hwy* N
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD143 *Collision Date* 20210405 *Time* 2040 *Day* MON
Primary Collision Factor DRVR ALC|DRG *Violation* 23152A *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20211029
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DARK - ST *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	H	HBD-UI		PASSING	N	D	2200	-	2015	- 3	A	22107	-	L G								
2	DRVR	27	F	H	HNBD		PROC ST	N	A	0700	FORD	2016	- 3	M		-	M G								

Primary Rd MERCEY SPRINGS RD *Distance (ft)* 400. *Direction* N *Secondary Rd* SAN LUIS ST *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 9.200 *Side of Hwy* S
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* 10 *Badge* PD52 *Collision Date* 20210616 *Time* 1656 *Day* WED
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20220228
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	M	H	HNBD		RGT TURN	S	A	0100	-	2012	- 3	N		-	M G								
2	DRVR	54	F	W	HNBD		PROC ST	S	A	0700	-	2017	- 3	N		-	M G								

Primary Rd MERCY SPRINGS RD *Distance (ft)* 400. *Direction* S *Secondary Rd* RT 152 *NCIC* 2405 *State Hwy?* Y *Route* 165 *Postmile Prefix* - *Postmile* 8.680 *Side of Hwy* S
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 3 *Beat* 0B3 *Type* 0 *CalTrans* 10 *Badge* PD45 *Collision Date* 20211021 *Time* 1540 *Day* THU
Primary Collision Factor UNKNOWN *Violation* *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20220706
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	57	M	W	HNBD		MERGING	-	E	2235	FORD	2001	- 3	N		-	M G								
2	DRVR	22	F		HNBD		PROC ST	S	A	0100	-	2013	- 3	N		-	M G								

Primary Rd MICHELOTTI DR *Distance (ft)* 0.00 *Direction* *Secondary Rd* ORTIGALITA RD *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 3 *Beat* 0B3 *Type* 0 *CalTrans* *Badge* PD58 *Collision Date* 20211105 *Time* 1155 *Day* FRI
Primary Collision Factor STOP SGN|SIG *Violation* 21453 *Collision Type* SIDESWIPE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20220701
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	-	A	0100	-		- -	N		-	B -								
2	DRVR	18	F	B			LFT TURN	E	A	0100	-	2007	- -	-		-	M G								

Primary Rd **MILLER LN** *Distance (ft)* **150.** *Direction* **N** *Secondary Rd* **PACHECO BL** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD58** *Collision Date* **20210508** *Time* **2003** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20211102**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	998	-	B	IMP UNK	IMP UNK	PROC ST	S	A	0100	-	2002	-	3	N		-	B	-
2	PRKD	998	-				PARKED	-	-	0035	-	2018	-	-	-		-	-	-
3	PRKD	998	-				PARKED	-	-	0000	-	2005	-	-	-		-	-	-

Victim Info: *ROLE* *Ext Of Inj* *AGE* *Sex* *Seat Pos* *Safety* *EQUIP* *Ejected*

Primary Rd **MISSION AV** *Distance (ft)* **51.0** *Direction* **W** *Secondary Rd* **SAN BERNARDINO** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD56** *Collision Date* **20210731** *Time* **1843** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	35	M	H	HNBD		ENT TRAF	N	A	0100	-	2004	-	3	E		-	M	G
2	DRVR	19	M	H	HNBD		PROC ST	W	A	0800	-	2014	-	3	N		-	M	G

Victim Info: *ROLE* *Ext Of Inj* *AGE* *Sex* *Seat Pos* *Safety* *EQUIP* *Ejected*

Primary Rd **MISSION DR** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD59** *Collision Date* **20210902** *Time* **1546** *Day* **THU**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220316**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety Equip	
1	DRVR	17	F				PARKING	N	A	0700	-	2002	-	3	N		-	M	B
2	DRVR	21	M	H	HNBD		PARKED	S	A	0100	-	2002	-	3	N		-	B	F

Victim Info: *ROLE* *Ext Of Inj* *AGE* *Sex* *Seat Pos* *Safety* *EQUIP* *Ejected*

Primary Rd **MISSION DR** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **SAN GERONIMO** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD58** *Collision Date* **20211007** *Time* **1525** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220623**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	58	M	H	HNBD		PROC ST	W	A	0100	-	2012	-	3	N		-	M	G
2	DRVR	17	F	H	HNBD		PROC ST	-	A	0100	-	2006	-	3	N		-	M	-

Victim Info: *ROLE* *Ext Of Inj* *AGE* *Sex* *Seat Pos* *Safety* *EQUIP* *Ejected*

Primary Rd **MONTE VISTA AV** *Distance (ft)* **14.0** *Direction* **S** *Secondary Rd* **HARRISON AV** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* *Badge* **PD146** *Collision Date* **20210730** *Time* **2154** *Day* **FRI**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220307**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	61	F	W	HBD-UI		PROC ST	S	A	0100	-	2003	-	3	A	22107	N	M	G
2	PRKD	998	-				PARKED	-	A	0100	JEEP	2001	-	3	N		-	-	-
3	PRKD	998	-				PARKED	-	D	2200	FORD	2013	-	3	N		-	-	-
4	PRKD	998	-				PARKED	-	A	0700	-	2007	-	3	N		-	-	-

Victim Info: *ROLE* *Ext Of Inj* *AGE* *Sex* *Seat Pos* *Safety* *EQUIP* *Ejected*

Primary Rd N MERCEY SPRINGS RD | Distance (ft) 36.0 | Direction N | Secondary Rd DOVE ST | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 10.550 | Side of Hwy N
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B42 | Type 0 | CalTrans 10 | Badge PD57 | Collision Date 20210717 | Time 2219 | Day SAT
Primary Collision Factor R-O-W AUTO | Violation 21801A | Collision Type BROADSIDE | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? Y | Process Date 20220224
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run FELONY | Motor Vehicle Involved With OTHER MV | Lighting DARK - NO | Ped Action | Cntrl Dev FNCTNG | Loc Type I | Ramp/Int 5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	LFT TURN	S	A	0100	-		-	3	-	-	B	-								
2	DRVR	24	M	H	HNBD		PROC ST	N	C	0200	-	2020	-	3	N	-	P	W	DRVR	MINOR	24	M	1	3	P	W

Primary Rd N MERCEY SPRINGS RD | Distance (ft) 73.0 | Direction N | Secondary Rd DOVE ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B42 | Type 0 | CalTrans | Badge PD143 | Collision Date 20210930 | Time 1325 | Day THU
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type HIT OBJECT | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? Y | Process Date 20220311
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER OBJ | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	76	M	H	HNBD		PROC ST	N	A	0100	-	2002	-	3	N	-	L	G	DRVR	OTH VIS	76	M	1	0	L	G

Primary Rd N MERCEY SPRINGS RD | Distance (ft) 120. | Direction N | Secondary Rd DOVE ST | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 10.570 | Side of Hwy S
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B4/2 | Type 0 | CalTrans 10 | Badge PD52 | Collision Date 20211108 | Time 0720 | Day MON
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20220706
Weather1 CLEAR | Weather2 | Rdwy Surface | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With MV ON OTHER RD | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type H | Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	46	M	H	HNBD		PROC ST	-	D	2300	-	2000	-	3	N	-	M	G								
2	DRVR	30	F	W	HNBD		STOPPED	S	A	0100	-	2010	-	3	N	-	M	G	DRVR	POSSIBL	30	F	1	0	M	G

Primary Rd N MERCEY SPRINGS RD | Distance (ft) 0.00 | Direction | Secondary Rd E B ST | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 9.469 | Side of Hwy N
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans 10 | Badge PD55 | Collision Date 20210606 | Time 1925 | Day SUN
Primary Collision Factor STOP SGN|SIG | Violation 21453A | Collision Type BROADSIDE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? Y | Process Date 20220228
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type I | Ramp/Int 5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	30	F	H	HNBD		PROC ST	N	A	0100	-	2019	-	3	N	-	L	-								
2	DRVR	37	M	W	HNBD		LFT TURN	S	D	2200	FORD	2011	-	3	N	-	L	-								

Primary Rd N MERCEY SPRINGS RD | Distance (ft) 0.00 | Direction | Secondary Rd OVERLAND AV | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 6 | Beat B42 | Type 0 | CalTrans | Badge PD133 | Collision Date 20210205 | Time 1444 | Day FRI
Primary Collision Factor IMPROP TURN | Violation 22107 | Collision Type SIDESWIPE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20210920
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	M	H	HNBD		RGT TURN	W	A	0100	-	1991	-	3	N	-	M	G	PASS		22	M	3	0	M	G
2	DRVR	38	M	W	HNBD		LFT TURN	E	D	2200	FORD	2008	-	3	N	-	M	G	PASS		50	M	3	0	M	G

Primary Rd **PACHECO BL** *Distance (ft)* **705.** *Direction* **W** *Secondary Rd* **BADGER FLAT RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **18.740** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD54** *Collision Date* **20211217** *Time* **1629** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20220712**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	55	F	W	HNBD		LFT TURN	S	A	0100	-	2015	-	3	N		-	L	-						
2	DRVR	29	M	H	HNBD		PROC ST	E	A	0100	-	2015	-	3	N		-	L	G	DRVR	MINOR	29	M	1	0	L	G

Primary Rd **PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **CALIFORNIA BL** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* *Badge* **PD143** *Collision Date* **20211124** *Time* **0617** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220701**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	ENT TRAF	W	-	0035	-		-	-	O		-	B	-						
2	DRVR	42	M	O	HNBD		PROC ST	W	A	0100	-	2019	-	2	N		-	M	G	PASS		16	F	3	0	M	G
																				PASS		18	M	9	0	M	G

Primary Rd **PACHECO BL** *Distance (ft)* **200.** *Direction* **E** *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.310** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD19** *Collision Date* **20210322** *Time* **1617** *Day* **MON**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210812**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **REDUCED RD** *Rdwy Cond2* **NO UNUSL CND** *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	998	-				PROC ST	-	A	0100	-	2014	-	3	-		-	B	-						
2	DRVR	30	F	W	HNBD		SLOWING	W	A	0700	JEEP	2016	-	3	N		-	M	G						

Primary Rd **PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.610** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD59** *Collision Date* **20210720** *Time* **0722** *Day* **TUE**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20220224**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	19	M	H			LFT TURN	N	A	0100	-	2013	-	3	N		-	L	G	DRVR	POSSIBL	19	M	1	0	L	G
2	DRVR	40	F	H			PROC ST	W	A	0700	FORD	2016	-	3	N		-	L	G	DRVR	SERIOUS	40	F	1	0	L	G
																				PASS	MINOR	998	M	5	0	L	Q

Primary Rd **PACHECO BL** *Distance (ft)* **300.** *Direction* **W** *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* *Badge* **PD58** *Collision Date* **20211209** *Time* **1208** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220628**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	24	F	H	HNBD		PROC ST	E	A	0100	-	2019	-	3	N		-	L	G						
2	DRVR	45	F	H	HNBD		STOPPED	E	A	0700	FORD	2014	-	3	N		-	M	G						
3	DRVR	54	M	H	HNBD		STOPPED	E	A	0100	-	2015	-	3	N		-	M	G	PASS		51	F	3	0	M	C

Primary Rd	PIONEER RD	Distance (ft)	150.	Direction	W	Secondary Rd	S 11TH ST	NCIC	2405	State Hwy?	N	Route	
City	Los Banos	County	Merced	Population	3	Rpt Dist	3	Beat	0B3	Type	0	CalTrans	
Badge	PD58	Postmile Prefix		Collision Date	20210521	Postmile		Time	1334	Day	FRI	Side of Hwy	
Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	HEAD-ON	Severity	PDO	#Killed	0	#Injured	0	Tow Away?	Y
Process Date	20211027	Weather1	CLEAR	Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0
Hit and Run		Motor Vehicle Involved With	FIXED OBJ	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	NT PRS/FCTR	Loc Type		Ramp/Int	

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	34	M	H	HNBD		PROC ST	W	A	0100	-	2001	- 3	N		-	L -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd	PISMO WY	Distance (ft)	21.0	Direction	N	Secondary Rd	CANAL FARM LN	NCIC	2405	State Hwy?	N	Route	
City	Los Banos	County	Merced	Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	
Badge	PD44	Postmile Prefix		Collision Date	20210313	Postmile		Time	1911	Day	SAT	Side of Hwy	
Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	HIT OBJECT	Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N
Process Date	20210811	Weather1	CLEAR	Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0
Hit and Run	MSDMNR	Motor Vehicle Involved With	FIXED OBJ	Lighting	DARK - ST	Ped Action		Cntrl Dev	FNCTNG	Loc Type		Ramp/Int	

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	LFT TURN	E	A	0100	-		- 3	A	22350	-	B -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd	PISMO WY	Distance (ft)	0.00	Direction		Secondary Rd	LAGUNA WY	NCIC	2405	State Hwy?	N	Route	
City	Los Banos	County	Merced	Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	
Badge	PD46	Postmile Prefix		Collision Date	20210309	Postmile		Time	1657	Day	TUE	Side of Hwy	
Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	SIDESWIPE	Severity	INJURY	#Killed	0	#Injured	1	Tow Away?	N
Process Date	20210812	Weather1	CLEAR	Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0
Hit and Run		Motor Vehicle Involved With	OTHER MV	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	FNCTNG	Loc Type		Ramp/Int	

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	18	M	H	HNBD		LFT TURN	N	A	0100	-	2009	- 3	N		-	M G
2	DRVR	21	M	H	HNBD		PROC ST	S	A	0100	-	1987	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	MINOR	20	M	3	0	M	G

Primary Rd	PLACE	Distance (ft)	374.	Direction	S	Secondary Rd	SONOMA AV	NCIC	2405	State Hwy?	N	Route	
City	Los Banos	County	Merced	Population	3	Rpt Dist	3	Beat	0B3	Type	0	CalTrans	
Badge	PD148	Postmile Prefix		Collision Date	20211209	Postmile		Time	1208	Day	THU	Side of Hwy	
Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	HIT OBJECT	Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N
Process Date	20220705	Weather1	CLEAR	Weather2	RAINING	Rdwy Surface	WET	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0
Hit and Run	MSDMNR	Motor Vehicle Involved With	FIXED OBJ	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	FNCTNG	Loc Type		Ramp/Int	

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-				UNS TURN	S	-	0000	FORD	2001	-	N		-	L B

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd	PLACE RD	Distance (ft)	0.00	Direction		Secondary Rd	E B ST	NCIC	2405	State Hwy?	N	Route	
City	Los Banos	County	Merced	Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	
Badge	PD60	Postmile Prefix		Collision Date	20211208	Postmile		Time	1818	Day	WED	Side of Hwy	
Primary Collision Factor	STRTNG|BCKNG	Violation	22106	Collision Type	REAR END	Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N
Process Date	20220701	Weather1	CLEAR	Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0
Hit and Run		Motor Vehicle Involved With	OTHER MV	Lighting	DARK - ST	Ped Action		Cntrl Dev	FNCTNG	Loc Type		Ramp/Int	

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	55	F	H	HNBD		BACKING	N	A	0100	-	2011	- 3	N		-	B G
2	DRVR	47	F	W	HNBD		STOPPED	N	A	0100	FORD	2014	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 152** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.600** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD55** *Collision Date* **20210819** *Time* **2221** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	24	F	H	HBD-UI		LFT TURN	E	A	0100	-	2016	- 3	A	22107	-	L	G								

Primary Rd **RT 152** *Distance (ft)* **120.** *Direction* **E** *Secondary Rd* **NEVADA AV** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **20.150** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **1** *Beat* **0B1** *Type* **0** *CalTrans* **10** *Badge* **PD26** *Collision Date* **20210127** *Time* **1217** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210812**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	52	F	W	HNBD		RGT TURN	W	A	0700	-	2016	- 3	-		-	M	G								
2	DRVR	37	F	H	HNBD		PROC ST	W	A	0700	-	2005	- 3	N		-	M	G								

Primary Rd **RT 152** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **NEVADA AV** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **20.090** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **1** *Beat* **0B1** *Type* **0** *CalTrans* **10** *Badge* **PD46** *Collision Date* **20210829** *Time* **1918** *Day* **SUN**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	17	M	H	HNBD		ENT TRAF	S	A	0100	-	2014	- 3	N		-	M	G								
2	DRVR	56	M	H	HNBD		PROC ST	W	A	0100	-	2016	- 3	N		-	M	G								

Primary Rd **RT 152** *Distance (ft)* **166.** *Direction* **W** *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.730** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD26** *Collision Date* **20210202** *Time* **1508** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210813**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	29	F	H	IMP UNK	IMP UNK	PROC ST	E	A	0100	-	2007	- 3	N		-	B	-								
2	DRVR	30	F	H	HNBD		SLOWING	E	A	0100	-	2019	- 3	N		-	M	E	PASS	POSSIBL	19	F	3	0	P	E

Primary Rd **RT 152** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **PLACE RD** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.760** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **3** *Beat* **0B3** *Type* **0** *CalTrans* **10** *Badge* **PD52** *Collision Date* **20210621** *Time* **1711** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **N** *Process Date* **20220224**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **MV ON OTHER RD** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	30	F	W	HNBD		PROC ST	-	A	0100	JEEP	2011	- 3	G		-	M	G	PASS	POSSIBL	24	F	3	0	M	G
2	DRVR	49	M	H	HNBD		SLOWING	-	A	0100	-	2007	- 3	G		-	M	G	DRVR	POSSIBL	49	M	1	0	M	G
3	DRVR	74	F	W	HNBD		SLOWING	-	A	0100	JEEP	2017	- 3	G		-	M	G								

Primary Rd S ROCK CREEK DR Distance (ft) 35.0 Direction W Secondary Rd SNOW GOOSE DR NCIC 2405 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Los Banos County Merced Population 3 Rpt Dist B2 Beat 0B2 Type 0 CalTrans Badge PD133 Collision Date 20210708 Time 0725 Day THU
Primary Collision Factor IMPROP TURN Violation 22107 Collision Type REAR END Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20220218
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run MSDMNR Motor Vehicle Involved With PKD MV Lighting DUSK/DAWN Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK		-	-	0000	-		- 3	N		-	B	-								
2	PRKD	998	-				PARKED	E	A	0100	-	2019	- -	N		-	-	-								

Primary Rd SAN BRUNO ST Distance (ft) 45.0 Direction S Secondary Rd SAN PEDRO ST NCIC 2405 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Los Banos County Merced Population 3 Rpt Dist 2 Beat 0B2 Type 0 CalTrans Badge PD52 Collision Date 20211115 Time 2200 Day MON
Primary Collision Factor IMPROP TURN Violation 22107 Collision Type SIDESWIPE Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20220726
Weather1 FOG Weather2 Rdwy Surface WET Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run MSDMNR Motor Vehicle Involved With OTHER MV Lighting DARK - ST Ped Action Cntrl Dev NT PRS/FCTR Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		HBD-UNK		PROC ST	N	-	9900	-		- -	N		-	B	-								
2	PRKD	998	-				PARKED	-	A	0100	-	2002	- -	-		-	-	-								

Primary Rd SAN LORENZO ST Distance (ft) 300. Direction S Secondary Rd SAN PEDRO ST NCIC 2405 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Los Banos County Merced Population 3 Rpt Dist 2 Beat 0B2 Type 0 CalTrans Badge PD52 Collision Date 20210707 Time 1306 Day WED
Primary Collision Factor IMPROP TURN Violation 22107 Collision Type SIDESWIPE Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20220218
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With PKD MV Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	36	M	H		FATG	UNS TURN	S	A	0100	-	2020	- 3	N		-	M	G								
2	PRKD	998	-				PARKED	-	A	0100	-	2006	- -	-		-	-	-								

Primary Rd SAN LUIS Distance (ft) 0.00 Direction Secondary Rd MERCEY SPRINGS NCIC 2405 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Los Banos County Merced Population 3 Rpt Dist 2 Beat 0B2 Type 0 CalTrans Badge PD56 Collision Date 20211120 Time 1446 Day SAT
Primary Collision Factor IMPROP TURN Violation 22100A Collision Type SIDESWIPE Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20220726
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DAYLIGHT Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	M	H	HNBD		RGT TURN	W	A	0100	-	1989	- 3	N		-	M	G								
2	DRVR	45	M	H	HNBD		RGT TURN	W	A	0100	-	2020	- 3	N		-	M	G								

Primary Rd SAN LUIS RD Distance (ft) 48.0 Direction W Secondary Rd WARD RD NCIC 2405 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Los Banos County Merced Population 3 Rpt Dist 2 Beat 0B2 Type 0 CalTrans Badge PD143 Collision Date 20210525 Time 0427 Day TUE
Primary Collision Factor PED VIOL Violation 21954A Collision Type AUTO/PED Severity INJURY #Killed 0 #Injured 1 Tow Away? N Process Date 20211026
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With PED Lighting DARK - ST Ped Action NOT IN X- Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	PED	62	M	H				S	N	6000	-		- -	-		-	-	-	PED	SERIOUS	62	M	-	-	-	-
2	DRVR	44	M	H	HNBD		PROC ST	W	A	0700	-	2002	- 3	N		-	M	G								

Primary Rd **DOVE ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **MERCEY SPRINGS** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **10.550** *Side of Hwy* **N**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **6** *Beat* **B42** *Type* **0** *CalTrans* **10** *Badge* **PD149** *Collision Date* **20220209** *Time* **1835** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220712**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **6**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	W	A	0700	-	1998	-	-	N	-	B	-							

Primary Rd **DOVE ST** *Distance (ft)* **100.** *Direction* **S** *Secondary Rd* **SKYLARK AV** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **6** *Beat* **B42** *Type* **0** *CalTrans* *Badge* **PD58** *Collision Date* **20220127** *Time* **0400** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220624**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK		W	-	0000	-		-	-	N	-	B	-	DRVR	POSSIBL	998	-	1	0	B	-
2	PRKD	998	-				PARKED	-	A	0100	-	2012	-	3	N	-	-	-							

Primary Rd **E B ST** *Distance (ft)* **101.** *Direction* **E** *Secondary Rd* **LAS PALMAS ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD143** *Collision Date* **20220213** *Time* **1935** *Day* **SUN**
Primary Collision Factor **PED VIOL** *Violation* **21954A** *Collision Type* **AUTO/PED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220623**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **PED** *Lighting* **DARK - ST** *Ped Action* **IN RD,** *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	PED	15	M	H	HNBD			-	N	6000	-		-	1	-	-	-	-	PED	OTH VIS	15	M	0	0	P	V
2	DRVR	998	-				PROC ST	-	A	0100	-		-	-	-	-	-	-							

Primary Rd **E B ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **N SANTA ROSA** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD133** *Collision Date* **20220913** *Time* **1118** *Day* **TUE**
Primary Collision Factor **OTHER IMPROP DRV** *Violation* *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230207**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	27	M	H	HNBD		PROC ST	W	D	8200	FORD	2019	-	3	N	-	M	G							
2	PRKD	998	-				PARKED	-	A	0100	-	2003	-	-	-	-	-	-							

Primary Rd **E B ST** *Distance (ft)* **250.** *Direction* **W** *Secondary Rd* **ST JAMES ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD133** *Collision Date* **20221004** *Time* **1306** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **N** *Process Date* **20230310**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	29	F	H	HNBD		PROC ST	W	A	0100	-	2016	-	3	N	-	L	G	DRVR	POSSIBL	29	F	1	0	L	G
																			PASS	MINOR	10	M	3	0	L	G
2	DRVR	44	F	W	HNBD		STOPPED	W	A	0100	-	2013	-	3	N	-	M	G	DRVR	MINOR	44	F	-	-	-	-

Primary Rd **E PACHECO BL** *Distance (ft)* **70.0** *Direction* **E** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.630** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD45** *Collision Date* **20220411** *Time* **2044** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20221012**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	32	M	H	HNBD		ENT TRAF	S	A	0700	-	1998	- 3	N		-	L G	DRVR	POSSIBL	32	M	1	0	L	G
2	DRVR	18	M	H	HNBD		PROC ST	S	A	0100	-	2003	- 3	N		-	L G	DRVR	POSSIBL	18	M	1	0	L	G

Primary Rd **E PACHECO BL** *Distance (ft)* **176.** *Direction* **E** *Secondary Rd* **MILLER LN** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.650** *Side of Hwy* **W**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD126** *Collision Date* **20220725** *Time* **1017** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230215**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	26	M		HNBD		CHANG LN	W	F	2500	-	2022	- 3	N		-	M G								
2	DRVR	46	F	W	HNBD		PROC ST	W	A	0100	-	2022	- 3	N		-	M G	PASS		57	F	6	0	P	G
																		PASS		57	M	4	0	P	G

Primary Rd **E PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **N MERCEY** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* *Postmile* **21.272** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD54** *Collision Date* **20220119** *Time* **2052** *Day* **WED**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220701**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	E	-	9900	-		- -	-		-	B -								
2	DRVR	36	M	H	HNBD		PROC ST	N	A	0100	-	2020	- 3	N		-	M G	DRVR	POSSIBL	36	M	1	0	M	G
																		PASS		14	M	3	0	M	G

Primary Rd **E PACHECO BL** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **N MERCY** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.190** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **6** *Beat* **B4/2** *Type* **0** *CalTrans* **10** *Badge* **PD20** *Collision Date* **20220611** *Time* **1246** *Day* **SAT**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20221012**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	998	-		IMP UNK	IMP UNK	MERGING	E	A	0700	FORD	2013	- -	N		-	M B								
2	DRVR	54	F	H	HNBD		PROC ST	E	A	0100	-	2015	- 3	N		-	M G								

Primary Rd **E PACHECO BL** *Distance (ft)* **722.** *Direction* **E** *Secondary Rd* **NICKEL** *NCIC* **2405** *State Hwy?* **Y** *Route* **152** *Postmile Prefix* **-** *Postmile* **21.930** *Side of Hwy* **E**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD146** *Collision Date* **20220902** *Time* **1131** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230329**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	37	M	H	HNBD		PROC ST	E	A	0100	-	2017	- 3	N		-	M G								
2	DRVR	32	F	H	HNBD		STOPPED	E	A	0100	-	2007	- 3	N		-	M G								

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **E B ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.469** *Side of Hwy* **S**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD20** *Collision Date* **20220408** *Time* **1444** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20221014**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	31	F	H	HNBD		PROC ST	S	A	0100	-	1997	- -	N		-	M G
2	DRVR	67	M	H	HNBD		STOPPED	S	A	0100	-	2010	- -	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	POSSIBL	31	F	1	0	M	G
PASS		77	M	3	0	M	G

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **425.** *Direction* **S** *Secondary Rd* **E B ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.390** *Side of Hwy* **N**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD149** *Collision Date* **20220623** *Time* **2110** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20221012**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	26	M	H	HNBD		PROC ST	N	A	0100	-	1998	- 3	N		-	M G
2	DRVR	20	M	H	HNBD		STOPPED	N	A	0100	-	2019	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **19.0** *Direction* **N** *Secondary Rd* **E B ST** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD42** *Collision Date* **20220810** *Time* **1813** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230314**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	30	M	W	HBD-UI		PROC ST	S	A	0700	FORD	2020	- -	A		-	L B
2	DRVR	32	M	W	HNBD		PROC ST	S	D	2200	-	2017	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **342.** *Direction* **N** *Secondary Rd* **E PACHECO BL** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.870** *Side of Hwy* **S**
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD47** *Collision Date* **20220212** *Time* **1254** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220712**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	LFT TURN	S	-	9900	-		- -	-		-	B -
2	DRVR	30	M	H	HNBD		PROC ST	S	A	0700	JEEP	2014	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		29	F	3	0	M	G
PASS		3	M	6	0	M	Q

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **382.** *Direction* **N** *Secondary Rd* **E PACHECO BL** *NCIC* **2405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Los Banos** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* *Badge* **PD46** *Collision Date* **20220226** *Time* **2142** *Day* **SAT**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220623**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	45	F	H	HNBD		PROC ST	S	A	0100	-	2012	- -	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		16	F	6	0	M	G
PASS		48	M	3	0	M	G
PASS		23	F	4	0	M	G

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **242.** *Direction* **N** *Secondary Rd* **PACHECO BL** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.860** *Side of Hwy* **S**
City **Los Banos RD** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD49** *Collision Date* **20220524** *Time* **0344** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20221019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	21	M		HBD-UI		PROC ST	S	A	0800	-	2015	- 3	A	23152	M	L G								
2	DRVR	55	M	H	HNBD		STOPPED	S	D	2200	-	2003	- 3	N		-	M G								

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **136.** *Direction* **N** *Secondary Rd* **PACHECO BL** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.830** *Side of Hwy* **S**
City **Los Banos RD** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD146** *Collision Date* **20221114** *Time* **0828** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PASSING	-	A	0100	-		- -	N		-	B -								
2	DRVR	48	M	A	HNBD		RGT TURN	S	A	0700	-	2022	- 3	N		-	M G								

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **363.** *Direction* **N** *Secondary Rd* **RT 152** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.870** *Side of Hwy* **N**
City **Los Banos RD** *County* **Merced** *Population* **3** *Rpt Dist* *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD126** *Collision Date* **20220405** *Time* **1247** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20221019**
Weather1 **CLEAR** *Weather2* **WIND** *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	35	M	W	HNBD		ENT TRAF	W	D	2200	-	2000	- 3	N		-	M G								
2	DRVR	18	F	H	HNBD		PROC ST	N	A	0100	-	2006	- 3	N		-	M C	PASS		17	F	3	0	M	G
																		PASS		17	F	4	0	P	G

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **323.** *Direction* **N** *Secondary Rd* **RT 152** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **8.870** *Side of Hwy* **S**
City **Los Banos RD** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD126** *Collision Date* **20221026** *Time* **0630** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20230224**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	58	F	H	HNBD		ENT TRAF	W	A	0100	-	2001	- -	A	22107	-	M G								

Primary Rd **MERCEY SPRINGS** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **SAN LUIS ST** *NCIC* **2405** *State Hwy?* **Y** *Route* **165** *Postmile Prefix* **-** *Postmile* **9.152** *Side of Hwy* **N**
City **Los Banos RD** *County* **Merced** *Population* **3** *Rpt Dist* **2** *Beat* **0B2** *Type* **0** *CalTrans* **10** *Badge* **PD59** *Collision Date* **20220903** *Time* **1352** *Day* **SAT**
Primary Collision Factor **IMPROP PASS** *Violation* **21751** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20230214**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-				LFT TURN	-	-	9900	-		- -	-		-	- -								
2	DRVR	46	F	H			PASSING	N	A	0100	-		- -	N		-	M G								

Primary Rd PLACE RD *Distance (ft)* 0.00 *Direction* *Secondary Rd* EAST B ST *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* *Badge* PD20 *Collision Date* 20220701 *Time* 0824 *Day* FRI
Primary Collision Factor STOP SGN|SIG *Violation* 21453A *Collision Type* BROADSIDE *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* N *Process Date* 20230207
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run FELONY *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	38	M	H	HNBD		PROC ST	S	A	0700	-	2020	- -	N		-	L G								
2	DRVR	60	M	H	HNBD		PROC ST	W	A	0700	JEEP	2017	- 3	N		-	L G	DRVR	OTH VIS	60	M	1	0	L	G

Primary Rd PLACE RD *Distance (ft)* 0.00 *Direction* *Secondary Rd* OVERLAND AV *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 2 *Beat* 0B2 *Type* 0 *CalTrans* *Badge* PD29 *Collision Date* 20220513 *Time* 1636 *Day* FRI
Primary Collision Factor R-O-W AUTO *Violation* 21802A *Collision Type* BROADSIDE *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20221209
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	27	F	H	HNBD		RGT TURN	E	A	0100	-	2020	- 3	N		-	M G								
2	DRVR	41	M	H	HNBD		PROC ST	S	D	2200	FORD	2007	- 3	N		-	M -	PASS		6	M	6	0	M	Q
																		PASS		41	F	3	0	M	G

Primary Rd POMELO AV *Distance (ft)* 24.0 *Direction* S *Secondary Rd* OVERLAND AV *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 1 *Beat* 0B1 *Type* 0 *CalTrans* *Badge* PD146 *Collision Date* 20220513 *Time* 2035 *Day* FRI
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20221028
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* PKD MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK		S	-	0000	-		- -	N		-	B -								
2	PRKD	998	-				PARKED	-	A	0100	-	1997	A -	-		-	- -								

Primary Rd PORT ST *Distance (ft)* 100. *Direction* S *Secondary Rd* BLUSH CT *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 5 *Beat* B41 *Type* 0 *CalTrans* *Badge* PD46 *Collision Date* 20220409 *Time* 2104 *Day* SAT
Primary Collision Factor STRTNG|BCKNG *Violation* 22106 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* N *Process Date* 20221020
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* PKD MV *Lighting* DARK - ST *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	16	F	H	IMP UNK	IMP UNK	BACKING	N	A	0100	FORD	2005	- -	O		-	B -								
2	PRKD	998	-				PARKED	-	D	2200	-	2014	- -	-		-	- -								

Primary Rd QUAIL ST *Distance (ft)* 61.0 *Direction* W *Secondary Rd* ASHBURY *NCIC* 2405 *State Hwy?* N *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City Los Banos *County* Merced *Population* 3 *Rpt Dist* 6 *Beat* B42 *Type* 0 *CalTrans* *Badge* PD61 *Collision Date* 20220817 *Time* 1449 *Day* WED
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* Y *Process Date* 20230207
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	19	F	H	HNBD		UNS TURN	E	A	0100	-	2010	- 3	F		-	M G								

Primary Rd	RT 165	Distance (ft)	30.0	Direction	S	Secondary Rd	RT 152	NCIC	2405	State Hwy?	Y
Route	165	Postmile Prefix	-	Postmile	8.770	Side of Hwy	N	City	Los Banos	County	Merced
Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	10	Badge	PD16
Collision Date	20221105	Time	1442	Day	SAT	Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	SIDESWIPE
Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N	Process Date	20230222	Weather1	CLOUDY
Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0	Hit and Run	
Motor Vehicle Involved With	OTHER MV	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	FNCTNG	Loc Type	H	Ramp/Int	-

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-				RGT TURN	-	A	0100	FORD		- -	-		-	-	-
2	DRVR	28	F	W	HNBD		PROC ST	N	A	0100		2014	- 3	N		-	M	G

Primary Rd	RT 165	Distance (ft)	0.00	Direction		Secondary Rd	SAN LUIS ST	NCIC	2405	State Hwy?	Y
Route	165	Postmile Prefix	-	Postmile	9.152	Side of Hwy	N	City	Los Banos	County	Merced
Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	10	Badge	PD146
Collision Date	20220702	Time	1841	Day	SAT	Primary Collision Factor	UNSAFE SPEED	Violation	22350	Collision Type	BROADSIDE
Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N	Process Date	20230214	Weather1	CLEAR
Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0	Hit and Run	
Motor Vehicle Involved With	OTHER MV	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	NT PRS/FCTR	Loc Type	I	Ramp/Int	5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	18	M	H	HNBD		PROC ST	N	A	0100	-	2010	- 3	N		-	M	G
2	DRVR	36	M	W	HNBD		RGT TURN	E	G	7528	-	2012	- -	N		-	M	G

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		15	M	3	0	M	G

Primary Rd	RT 165	Distance (ft)	0.00	Direction		Secondary Rd	ST FRANCIS DR	NCIC	2405	State Hwy?	Y
Route	165	Postmile Prefix	-	Postmile	10.820	Side of Hwy	N	City	Los Banos	County	Merced
Population	3	Rpt Dist	6	Beat	B42	Type	0	CalTrans	10	Badge	PD55
Collision Date	20220330	Time	1825	Day	WED	Primary Collision Factor	IMPROP TURN	Violation	22107	Collision Type	BROADSIDE
Severity	PDO	#Killed	0	#Injured	0	Tow Away?	N	Process Date	20220712	Weather1	CLEAR
Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0	Hit and Run	
Motor Vehicle Involved With	OTHER MV	Lighting	DAYLIGHT	Ped Action		Cntrl Dev	NT PRS/FCTR	Loc Type	I	Ramp/Int	5

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	17	M	H	HNBD		LFT TURN	W	A	0100	-	2008	- 3	N		-	L	G
2	DRVR	57	M	W	HNBD		PROC ST	N	A	0100	FORD	2000	- 3	N		-	M	G

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		18	F	3	0	M	G

Primary Rd	RT 165	Distance (ft)	0.00	Direction	S	Secondary Rd	WILLMOTT AV	NCIC	2405	State Hwy?	Y
Route	165	Postmile Prefix	-	Postmile	9.610	Side of Hwy	N	City	Los Banos	County	Merced
Population	3	Rpt Dist	2	Beat	0B2	Type	0	CalTrans	10	Badge	PD143
Collision Date	20220116	Time	1823	Day	SUN	Primary Collision Factor	PED VIOL	Violation	21954A	Collision Type	AUTO/PED
Severity	FATAL	#Killed	1	#Injured	0	Tow Away?	N	Process Date	20220720	Weather1	CLOUDY
Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0	Hit and Run	
Motor Vehicle Involved With	PED	Lighting	DARK - NO	Ped Action	IN RD,	Cntrl Dev	FNCTNG	Loc Type	H	Ramp/Int	-

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	PED	15	M	H	HBD-UNK			E	N	6000	-		- -	F		-	-	-
2	DRVR	28	M	H	HNBD		PROC ST	N	A	0700	-	2017	- 3	N		-	G	-
3	DRVR	59	F	A	HNBD			N	-	0000	-	2004	- 2	M		-	M	G

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PED	KILLED	15	M	-	-	-	-

Primary Rd	RT 33	Distance (ft)	0.00	Direction		Secondary Rd	BADGERFLAT RD	NCIC	2405	State Hwy?	Y
Route	152	Postmile Prefix	-	Postmile	18.790	Side of Hwy	E	City	Los Banos	County	Merced
Population	3	Rpt Dist	1	Beat	0B1	Type	0	CalTrans	10	Badge	PD126
Collision Date	20220909	Time	0556	Day	FRI	Primary Collision Factor	PED VIOL	Violation	21954A	Collision Type	AUTO/PED
Severity	FATAL	#Killed	1	#Injured	0	Tow Away?	N	Process Date	20230222	Weather1	CLEAR
Weather2		Rdwy Surface	DRY	Rdwy Cond1	NO UNUSL CND	Rdwy Cond2		Spec Cond	0	Hit and Run	FELONY
Motor Vehicle Involved With	PED	Lighting	DARK - NO	Ped Action	NOT IN X-	Cntrl Dev	NT PRS/FCTR	Loc Type	H	Ramp/Int	-

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	PED	33	M	H	IMP UNK	IMP UNK		S	N	6000	-		- -	N		-	-	-
2	DRVR	68	F	H	IMP UNK	IMP UNK	PROC ST	E	A	0100	-	1999	- -	N		-	B	-

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PED	KILLED	33	M	-	0	P	-

Primary Rd S MERCEY | Distance (ft) 0.00 | Direction | Secondary Rd SCRIPPS RD | NCIC 2405 | State Hwy? Y | Route 165 | Postmile Prefix - | Postmile 8.251 | Side of Hwy N
City Los Banos SPRINGS RD | County Merced | Population 3 | Rpt Dist 3 | Beat 0B3 | Type 0 | CalTrans 10 | Badge PD60 | Collision Date 20220209 | Time 1920 | Day WED
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? Y | Process Date 20220712
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type I | Ramp/Int 5

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	26	F	A			PROC ST	N	A	0700	-	2019	- 3	N		-	L G
2	DRVR	17	M	W	HNBD		RGT TURN	N	A	0100	-	2004	- 3	N		-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd S NEVADA AV | Distance (ft) 170. | Direction S | Secondary Rd W ADAMS ST | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 3 | Beat 0B3 | Type 0 | CalTrans | Badge PD20 | Collision Date 20220820 | Time 1356 | Day SAT
Primary Collision Factor STRTNG|BCKNG | Violation 22106 | Collision Type SIDESWIPE | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20230207
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With PKD MV | Lighting DAYLIGHT | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-				BACKING	-	A	0100	-		- -	-		-	- -
2	PRKD	998	-				PARKED	-	A	0100	-	2017	- -	-		-	- -
3	PRKD	998	-				PARKED	-	D	7200	-	2008	- -	-		-	- -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd SAN LUIS ST | Distance (ft) 10.0 | Direction E | Secondary Rd MERCEY SPRINGS | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD146 | Collision Date 20220522 | Time 2225 | Day SUN
Primary Collision Factor UNSAFE SPEED | Violation 22350 | Collision Type REAR END | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20221028
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run MSDMNR | Motor Vehicle Involved With OTHER MV | Lighting DARK - ST | Ped Action | Cntrl Dev NT PRS/FCTR | Loc Type | Ramp/Int

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	M	H	IMP UNK	IMP UNK	PROC ST	W	A	0100	-		A -	N		-	M B
2	DRVR	27	F	H	HNBD		PROC ST	W	A	0100	-	2016	A -	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd SAN LUIS ST | Distance (ft) 8.00 | Direction E | Secondary Rd PLACE RD | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD148 | Collision Date 20220813 | Time 0151 | Day SAT
Primary Collision Factor DRVR ALC|DRG | Violation 23152A | Collision Type HIT OBJECT | Severity PDO | #Killed 0 | #Injured 0 | Tow Away? N | Process Date 20230206
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With FIXED OBJ | Lighting DARK - ST | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	44	M	H	HBD-UI		PROC ST	S	A	0100	-	2015	- 3	A	22350	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		44	F	6	0	M	G
PASS		29	M	3	0	M	G

Primary Rd SAN LUIS ST | Distance (ft) 0.00 | Direction | Secondary Rd S FALLBROOK | NCIC 2405 | State Hwy? N | Route | Postmile Prefix | Postmile | Side of Hwy
City Los Banos | County Merced | Population 3 | Rpt Dist 2 | Beat 0B2 | Type 0 | CalTrans | Badge PD45 | Collision Date 20220108 | Time 1612 | Day SAT
Primary Collision Factor WRONG SIDE | Violation 21650 | Collision Type BROADSIDE | Severity INJURY | #Killed 0 | #Injured 1 | Tow Away? N | Process Date 20220912
Weather1 CLEAR | Weather2 | Rdwy Surface DRY | Rdwy Cond1 NO UNUSL CND | Rdwy Cond2 | Spec Cond 0
Hit and Run | Motor Vehicle Involved With BICYCLE | Lighting DAYLIGHT | Ped Action | Cntrl Dev FNCTNG | Loc Type | Ramp/Int

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	BICY	12	M		HNBD			E	L	0400	-		- 3	N		-	- -
2	DRVR	71	M		HNBD		RGT TURN	S	D	8200	-	1994	- 3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
BICY	POSSIBL	12	M	-	1	P	W

Appendix E: Existing Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	173	114	133	213	133	66	429	47	132	520	94
Future Volume (veh/h)	112	173	114	133	213	133	66	429	47	132	520	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	129	199	131	153	245	0	76	493	54	152	598	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	156	227	149	177	426		97	579	63	181	612	110
Arrive On Green	0.09	0.22	0.22	0.10	0.23	0.00	0.06	0.36	0.36	0.10	0.40	0.40
Sat Flow, veh/h	1753	1032	679	1753	1841	1560	1753	1630	179	1753	1516	274
Grp Volume(v), veh/h	129	0	330	153	245	0	76	0	547	152	0	706
Grp Sat Flow(s),veh/h/ln	1753	0	1711	1753	1841	1560	1753	0	1809	1753	0	1790
Q Serve(g_s), s	6.7	0.0	17.2	7.9	10.9	0.0	3.9	0.0	25.7	7.8	0.0	35.7
Cycle Q Clear(g_c), s	6.7	0.0	17.2	7.9	10.9	0.0	3.9	0.0	25.7	7.8	0.0	35.7
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	156	0	376	177	426		97	0	643	181	0	722
V/C Ratio(X)	0.83	0.00	0.88	0.86	0.57		0.78	0.00	0.85	0.84	0.00	0.98
Avail Cap(c_a), veh/h	156	0	428	177	482		101	0	647	181	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	0.0	34.7	40.7	31.3	0.0	42.9	0.0	27.4	40.5	0.0	27.0
Incr Delay (d2), s/veh	28.9	0.0	17.0	32.8	1.3	0.0	31.2	0.0	11.0	28.0	0.0	28.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	8.7	4.9	4.8	0.0	2.5	0.0	12.4	4.7	0.0	19.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	0.0	51.7	73.6	32.7	0.0	74.1	0.0	38.4	68.5	0.0	55.1
LnGrp LOS	E	A	D	E	C		E	A	D	E	A	E
Approach Vol, veh/h		459			398			623			858	
Approach Delay, s/veh		56.9			48.4			42.7			57.4	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	38.5	14.0	25.3	9.8	42.9	12.9	26.4
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.5	32.9	* 9.3	23.0	* 5.3	37.1	* 8.2	24.1
Max Q Clear Time (g_c+I1), s	9.8	27.7	9.9	19.2	5.9	37.7	8.7	12.9
Green Ext Time (p_c), s	0.0	2.1	0.0	0.7	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	51.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	4.1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	Y	
Traffic Vol, veh/h	42	350	399	108	78	64
Future Vol, veh/h	42	350	399	108	78	64
Conflicting Peds, #/hr	15	0	0	15	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	50	417	475	129	93	76

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	619	0	-	0	1007	490
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	517	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	956	-	-	-	266	576
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	942	-	-	-	245	568
Mov Cap-2 Maneuver	-	-	-	-	245	-
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	588	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	27
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	942	-	-	-	329
HCM Lane V/C Ratio	0.053	-	-	-	0.514
HCM Control Delay (s)	9	-	-	-	27
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	317	93	64	276	61	99	144	27	142	154	143
Future Volume (veh/h)	39	317	93	64	276	61	99	144	27	142	154	143
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		0.98	1.00		0.99	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	48	391	115	79	341	75	122	178	33	175	190	177
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	85	531	450	115	446	98	155	382	320	194	422	341
Arrive On Green	0.05	0.29	0.29	0.06	0.30	0.30	0.09	0.21	0.21	0.11	0.23	0.23
Sat Flow, veh/h	1767	1856	1570	1767	1468	323	1767	1856	1557	1767	1856	1497
Grp Volume(v), veh/h	48	391	115	79	0	416	122	178	33	175	190	177
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	0	1791	1767	1856	1557	1767	1856	1497
Q Serve(g_s), s	1.4	10.1	3.0	2.3	0.0	11.1	3.6	4.5	0.9	5.2	4.7	5.5
Cycle Q Clear(g_c), s	1.4	10.1	3.0	2.3	0.0	11.1	3.6	4.5	0.9	5.2	4.7	5.5
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	85	531	450	115	0	543	155	382	320	194	422	341
V/C Ratio(X)	0.57	0.74	0.26	0.69	0.00	0.77	0.79	0.47	0.10	0.90	0.45	0.52
Avail Cap(c_a), veh/h	167	867	734	211	0	881	167	899	755	194	927	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	17.0	14.5	24.2	0.0	16.7	23.6	18.4	17.0	23.2	17.6	17.9
Incr Delay (d2), s/veh	5.9	2.0	0.3	7.1	0.0	2.3	20.2	0.9	0.1	38.6	0.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.0	0.9	1.1	0.0	4.2	2.2	1.8	0.3	4.0	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	19.1	14.8	31.3	0.0	19.0	43.8	19.3	17.2	61.8	18.3	19.1
LnGrp LOS	C	B	B	C	A	B	D	B	B	E	B	B
Approach Vol, veh/h		554			495			333			542	
Approach Delay, s/veh		19.2			20.9			28.1			32.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	15.5	7.6	19.7	8.8	16.6	6.7	20.6
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5.8	25.6	* 6.3	24.7	* 5	26.4	* 5	26.0
Max Q Clear Time (g_c+I1), s	7.2	6.5	4.3	12.1	5.6	7.5	3.4	13.1
Green Ext Time (p_c), s	0.0	0.9	0.0	2.2	0.0	1.6	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	10.9					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	99	163	421	125	195	592
Future Vol, veh/h	99	163	421	125	195	592
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	108	177	458	136	212	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1593	526	0	0	594	0
Stage 1	526	-	-	-	-	-
Stage 2	1067	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	117	548	-	-	972	-
Stage 1	589	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 91	548	-	-	972	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	256	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	59.4	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	326	972	-
HCM Lane V/C Ratio	-	-	0.874	0.218	-
HCM Control Delay (s)	-	-	59.4	9.7	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	8.1	0.8	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	64.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	154	14	167	179	144	11	52	99	88	67	119
Future Vol, veh/h	124	154	14	167	179	144	11	52	99	88	67	119
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	153	190	17	206	221	178	14	64	122	109	83	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	30.9	121.1	18	27.8
HCM LOS	D	F	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	42%	34%	32%
Vol Thru, %	32%	53%	37%	24%
Vol Right, %	61%	5%	29%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	292	490	274
LT Vol	11	124	167	88
Through Vol	52	154	179	67
RT Vol	99	14	144	119
Lane Flow Rate	200	360	605	338
Geometry Grp	1	1	1	1
Degree of Util (X)	0.438	0.747	1.172	0.702
Departure Headway (Hd)	8.502	7.937	6.977	8.004
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	426	458	520	453
Service Time	6.502	5.937	5.077	6.004
HCM Lane V/C Ratio	0.469	0.786	1.163	0.746
HCM Control Delay	18	30.9	121.1	27.8
HCM Lane LOS	C	D	F	D
HCM 95th-tile Q	2.2	6.2	21.4	5.4

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	124	261	311	127	50	151
Future Vol, veh/h	124	261	311	127	50	151
Conflicting Peds, #/hr	36	0	0	36	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	143	300	357	146	57	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	539	0	-	0	1052	466
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1024	-	-	-	250	595
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	554	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	989	-	-	-	193	575
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	535	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	27.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	989	-	-	-	385
HCM Lane V/C Ratio	0.144	-	-	-	0.6
HCM Control Delay (s)	9.3	0	-	-	27.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.5	-	-	-	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	586	2	0	973	32	2	0	0	69	0	172
Future Volume (vph)	86	586	2	0	973	32	2	0	0	69	0	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1			5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			1.00			1.00			0.90	
Flt Protected	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (prot)	1641	3280			3264			1641			1539	
Flt Permitted	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (perm)	1641	3280			3264			1641			1539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	92	630	2	0	1046	34	2	0	0	74	0	185
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	121	0
Lane Group Flow (vph)	92	632	0	0	1078	0	0	2	0	0	138	0
Confl. Peds. (#/hr)			1			2						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	6.5	41.6			30.4			4.0			8.2	
Effective Green, g (s)	6.5	41.6			30.4			4.0			8.2	
Actuated g/C Ratio	0.09	0.60			0.44			0.06			0.12	
Clearance Time (s)	4.7	5.1			5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)	154	1974			1435			94			182	
v/s Ratio Prot	c0.06	0.19			c0.33			c0.00			c0.09	
v/s Ratio Perm												
v/c Ratio	0.60	0.32			0.75			0.02			0.76	
Uniform Delay, d1	30.0	6.8			16.2			30.7			29.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	6.3	0.1			2.3			0.1			17.0	
Delay (s)	36.4	6.9			18.5			30.8			46.5	
Level of Service	D	A			B			C			D	
Approach Delay (s)		10.6			18.5			30.8			46.5	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	111	49	84	91	65	44	406	48	39	500	38
Future Volume (veh/h)	85	111	49	84	91	65	44	406	48	39	500	38
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	89	116	51	88	95	0	46	423	50	41	521	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	116	172	76	115	261		79	625	74	73	647	50
Arrive On Green	0.07	0.14	0.14	0.07	0.14	0.00	0.05	0.39	0.39	0.04	0.39	0.39
Sat Flow, veh/h	1739	1201	528	1739	1826	1547	1739	1602	189	1739	1674	129
Grp Volume(v), veh/h	89	0	167	88	95	0	46	0	473	41	0	561
Grp Sat Flow(s),veh/h/ln	1739	0	1729	1739	1826	1547	1739	0	1792	1739	0	1803
Q Serve(g_s), s	2.9	0.0	5.2	2.8	2.7	0.0	1.5	0.0	12.4	1.3	0.0	15.7
Cycle Q Clear(g_c), s	2.9	0.0	5.2	2.8	2.7	0.0	1.5	0.0	12.4	1.3	0.0	15.7
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	116	0	248	115	261		79	0	699	73	0	697
V/C Ratio(X)	0.77	0.00	0.67	0.76	0.36		0.58	0.00	0.68	0.56	0.00	0.81
Avail Cap(c_a), veh/h	169	0	733	169	774		157	0	956	154	0	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	23.0	26.0	21.9	0.0	26.5	0.0	14.3	26.6	0.0	15.5
Incr Delay (d2), s/veh	12.0	0.0	3.3	11.4	0.9	0.0	6.6	0.0	1.8	6.6	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	2.1	1.4	1.1	0.0	0.7	0.0	4.5	0.6	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	26.3	37.4	22.8	0.0	33.1	0.0	16.1	33.2	0.0	20.1
LnGrp LOS	D	A	C	D	C		C	A	B	C	A	C
Approach Vol, veh/h		256			183			519			602	
Approach Delay, s/veh		30.4			29.8			17.6			21.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	27.9	8.4	13.2	7.3	27.7	8.5	13.2
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 5	30.2	* 5.5	24.0	* 5.1	30.1	* 5.5	24.0
Max Q Clear Time (g_c+I1), s	3.3	14.4	4.8	7.2	3.5	17.7	4.9	4.7
Green Ext Time (p_c), s	0.0	3.9	0.0	0.8	0.0	4.2	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1.5					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	176	150	25	20	25
Future Vol, veh/h	21	176	150	25	20	25
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	23	189	161	27	22	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	190	0	-	0	398	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1378	-	-	-	605	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	592	877
Mov Cap-2 Maneuver	-	-	-	-	592	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1375	-	-	-	722
HCM Lane V/C Ratio	0.016	-	-	-	0.067
HCM Control Delay (s)	7.7	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	160	27	13	130	39	26	49	19	46	59	60
Future Volume (veh/h)	19	160	27	13	130	39	26	49	19	46	59	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	172	29	14	140	42	28	53	20	49	63	65
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	45	392	327	32	280	84	61	281	237	98	319	268
Arrive On Green	0.03	0.21	0.21	0.02	0.20	0.20	0.03	0.15	0.15	0.06	0.17	0.17
Sat Flow, veh/h	1767	1856	1546	1767	1370	411	1767	1856	1568	1767	1856	1554
Grp Volume(v), veh/h	20	172	29	14	0	182	28	53	20	49	63	65
Grp Sat Flow(s),veh/h/ln	1767	1856	1546	1767	0	1782	1767	1856	1568	1767	1856	1554
Q Serve(g_s), s	0.3	2.5	0.5	0.2	0.0	2.8	0.5	0.8	0.3	0.8	0.9	1.1
Cycle Q Clear(g_c), s	0.3	2.5	0.5	0.2	0.0	2.8	0.5	0.8	0.3	0.8	0.9	1.1
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	392	327	32	0	363	61	281	237	98	319	268
V/C Ratio(X)	0.44	0.44	0.09	0.43	0.00	0.50	0.46	0.19	0.08	0.50	0.20	0.24
Avail Cap(c_a), veh/h	328	1569	1308	328	0	1507	328	1688	1426	385	1747	1464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	10.7	9.9	15.2	0.0	11.0	14.8	11.6	11.4	14.3	11.1	11.2
Incr Delay (d2), s/veh	6.7	0.8	0.1	8.9	0.0	1.1	5.3	0.3	0.2	3.9	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.1	0.2	0.0	0.9	0.2	0.3	0.1	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	11.5	10.0	24.0	0.0	12.1	20.1	11.9	11.5	18.2	11.4	11.6
LnGrp LOS	C	B	B	C	A	B	C	B	B	B	B	B
Approach Vol, veh/h		221			196			101			177	
Approach Delay, s/veh		12.2			12.9			14.1			13.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	9.3	4.8	11.2	5.3	10.0	5.0	11.0
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 6.8	28.4	* 5.8	26.4	* 5.8	29.4	* 5.8	26.4
Max Q Clear Time (g_c+I1), s	2.8	2.8	2.2	4.5	2.5	3.1	2.3	4.8
Green Ext Time (p_c), s	0.0	0.3	0.0	0.9	0.0	0.5	0.0	0.9

Intersection Summary			
HCM 6th Ctrl Delay			13.0
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	77	459	121	45	606
Future Vol, veh/h	91	77	459	121	45	606
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	92	78	464	122	45	612

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1227	525	0	0	586	0
Stage 1	525	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	193	545	-	-	969	-
Stage 1	585	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	545	-	-	969	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	462	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	393	969	-
HCM Lane V/C Ratio	-	-	0.432	0.047	-
HCM Control Delay (s)	-	-	20.9	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	147	16	83	108	10	38	4	69	9	13	5
Future Vol, veh/h	8	147	16	83	108	10	38	4	69	9	13	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	152	16	86	111	10	39	4	71	9	13	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	9.2	8.4	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	5%	41%	33%
Vol Thru, %	4%	86%	54%	48%
Vol Right, %	62%	9%	5%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	171	201	27
LT Vol	38	8	83	9
Through Vol	4	147	108	13
RT Vol	69	16	10	5
Lane Flow Rate	114	176	207	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.145	0.219	0.261	0.038
Departure Headway (Hd)	4.556	4.471	4.533	4.928
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	802	792	725
Service Time	2.587	2.499	2.56	2.967
HCM Lane V/C Ratio	0.145	0.219	0.261	0.039
HCM Control Delay	8.4	8.8	9.2	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.8	1	0.1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	174	147	37	37	55
Future Vol, veh/h	52	174	147	37	37	55
Conflicting Peds, #/hr	3	0	0	3	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	55	185	156	39	39	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	198	0	-	0	474	179
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1369	-	-	-	547	861
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1365	-	-	-	519	859
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	751	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1365	-	-	-	680
HCM Lane V/C Ratio	0.041	-	-	-	0.144
HCM Control Delay (s)	7.7	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	930	0	3	855	59	7	5	2	87	2	81
Future Volume (vph)	49	930	0	3	855	59	7	5	2	87	2	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1641	3282		1641	3250			1649			1576	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (perm)	1641	3282		1641	3250			1649			1576	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	979	0	3	900	62	7	5	2	92	2	85
RTOR Reduction (vph)	0	0	0	0	4	0	0	2	0	0	32	0
Lane Group Flow (vph)	52	979	0	3	958	0	0	12	0	0	147	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	3.0	33.5		0.6	31.1			4.9			8.7	
Effective Green, g (s)	3.0	33.5		0.6	31.1			4.9			8.7	
Actuated g/C Ratio	0.04	0.49		0.01	0.46			0.07			0.13	
Clearance Time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5		3.3	3.5			3.5			3.5	
Lane Grp Cap (vph)	72	1624		14	1492			119			202	
v/s Ratio Prot	c0.03	c0.30		0.00	0.29			c0.01			c0.09	
v/s Ratio Perm												
v/c Ratio	0.72	0.60		0.21	0.64			0.10			0.73	
Uniform Delay, d1	31.9	12.3		33.3	14.0			29.3			28.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	30.3	0.7		8.4	1.0			0.4			12.6	
Delay (s)	62.3	13.0		41.7	15.0			29.8			41.0	
Level of Service	E	B		D	B			C			D	
Approach Delay (s)		15.5			15.1			29.8			41.0	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	99	163	421	125	195	592
Future Volume (veh/h)	99	163	421	125	195	592
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	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	108	177	458	136	212	643
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	131	214	542	161	264	1147
Arrive On Green	0.21	0.21	0.40	0.40	0.15	0.62
Sat Flow, veh/h	615	1008	1363	405	1753	1841
Grp Volume(v), veh/h	286	0	0	594	212	643
Grp Sat Flow(s),veh/h/ln	1629	0	0	1768	1753	1841
Q Serve(g_s), s	9.4	0.0	0.0	17.1	6.6	11.3
Cycle Q Clear(g_c), s	9.4	0.0	0.0	17.1	6.6	11.3
Prop In Lane	0.38	0.62		0.23	1.00	
Lane Grp Cap(c), veh/h	347	0	0	703	264	1147
V/C Ratio(X)	0.83	0.00	0.00	0.85	0.80	0.56
Avail Cap(c_a), veh/h	639	0	0	1003	400	1602
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	21.1	0.0	0.0	15.3	23.0	6.1
Incr Delay (d2), s/veh	5.0	0.0	0.0	4.7	6.8	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	3.7	0.0	0.0	6.5	2.9	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.1	0.0	0.0	20.1	29.8	6.6
LnGrp LOS	C	A	A	C	C	A
Approach Vol, veh/h	286		594			855
Approach Delay, s/veh	26.1		20.1			12.3
Approach LOS	C		C			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.7	26.9				39.5		16.5
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 13	31.8				48.8		22.0
Max Q Clear Time (g_c+I1), s	8.6	19.1				13.3		11.4
Green Ext Time (p_c), s	0.2	3.2				4.8		0.7

Intersection Summary		
HCM 6th Ctrl Delay		17.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	21.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	154	14	167	179	144	11	52	99	88	67	119
Future Vol, veh/h	124	154	14	167	179	144	11	52	99	88	67	119
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	153	190	17	206	221	178	14	64	122	109	83	147
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	16.1	25.9	15.7	23.2
HCM LOS	C	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	7%	100%	0%	100%	0%	32%
Vol Thru, %	32%	0%	92%	0%	55%	24%
Vol Right, %	61%	0%	8%	0%	45%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	124	168	167	323	274
LT Vol	11	124	0	167	0	88
Through Vol	52	0	154	0	179	67
RT Vol	99	0	14	0	144	119
Lane Flow Rate	200	153	207	206	399	338
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.412	0.351	0.442	0.45	0.778	0.665
Departure Headway (Hd)	7.417	8.256	7.68	7.864	7.028	7.076
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	482	433	467	456	510	507
Service Time	5.513	6.049	5.472	5.649	4.812	5.155
HCM Lane V/C Ratio	0.415	0.353	0.443	0.452	0.782	0.667
HCM Control Delay	15.7	15.5	16.5	17	30.5	23.2
HCM Lane LOS	C	C	C	C	D	C
HCM 95th-tile Q	2	1.6	2.2	2.3	7	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	91	77	459	121	45	606
Future Volume (veh/h)	91	77	459	121	45	606
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	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	92	78	464	122	45	612
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	121	103	597	157	87	1089
Arrive On Green	0.14	0.14	0.43	0.43	0.05	0.60
Sat Flow, veh/h	879	745	1382	363	1725	1811
Grp Volume(v), veh/h	171	0	0	586	45	612
Grp Sat Flow(s),veh/h/ln	1633	0	0	1746	1725	1811
Q Serve(g_s), s	3.6	0.0	0.0	10.1	0.9	7.2
Cycle Q Clear(g_c), s	3.6	0.0	0.0	10.1	0.9	7.2
Prop In Lane	0.54	0.46		0.21	1.00	
Lane Grp Cap(c), veh/h	225	0	0	754	87	1089
V/C Ratio(X)	0.76	0.00	0.00	0.78	0.52	0.56
Avail Cap(c_a), veh/h	1019	0	0	1213	249	1736
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	14.6	0.0	0.0	8.6	16.3	4.2
Incr Delay (d2), s/veh	5.2	0.0	0.0	1.8	4.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	2.5	0.4	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.9	0.0	0.0	10.3	21.0	4.7
LnGrp LOS	B	A	A	B	C	A
Approach Vol, veh/h	171		586			657
Approach Delay, s/veh	19.9		10.3			5.8
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.0	19.8				25.8		9.5
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 5.1	24.5				33.8		22.0
Max Q Clear Time (g_c+I1), s	2.9	12.1				9.2		5.6
Green Ext Time (p_c), s	0.0	3.1				4.2		0.4

Intersection Summary			
HCM 6th Ctrl Delay			9.4
HCM 6th LOS			A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	147	16	83	108	10	38	4	69	9	13	5
Future Vol, veh/h	8	147	16	83	108	10	38	4	69	9	13	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	152	16	86	111	10	39	4	71	9	13	5
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.3	8.9	8.4	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	100%	0%	100%	0%	33%
Vol Thru, %	4%	0%	90%	0%	92%	48%
Vol Right, %	62%	0%	10%	0%	8%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	8	163	83	118	27
LT Vol	38	8	0	83	0	9
Through Vol	4	0	147	0	108	13
RT Vol	69	0	16	0	10	5
Lane Flow Rate	114	8	168	86	122	28
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.147	0.013	0.234	0.132	0.168	0.039
Departure Headway (Hd)	4.614	5.591	5.019	5.549	4.986	4.988
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	777	640	714	646	719	716
Service Time	2.645	3.327	2.755	3.285	2.722	3.03
HCM Lane V/C Ratio	0.147	0.013	0.235	0.133	0.17	0.039
HCM Control Delay	8.4	8.4	9.3	9.1	8.7	8.2
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.5	0	0.9	0.5	0.6	0.1

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (ft)	114	442	120	254	227	219	346	400	850
Average Queue (ft)	90	164	87	134	8	79	185	115	296
95th Queue (ft)	137	297	134	233	75	184	288	261	579
Link Distance (ft)		1859		322			1770		1551
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	50		55		120	160		300	
Storage Blk Time (%)	45	41	34	40			14		11
Queuing Penalty (veh)	129	46	118	105			9		14

Intersection: 2: B Street & Las Palmas Street

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	55	90
Average Queue (ft)	16	37
95th Queue (ft)	45	63
Link Distance (ft)		1330
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	69	194	61	83	215	95	87	62	132	153	101
Average Queue (ft)	28	90	23	32	96	54	47	16	73	71	47
95th Queue (ft)	57	156	48	68	174	92	75	38	123	123	79
Link Distance (ft)		424			619		1733			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		1			3					0	
Queuing Penalty (veh)		1			2					0	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	182	434	220	362
Average Queue (ft)	92	181	106	110
95th Queue (ft)	151	334	182	219
Link Distance (ft)	1759	1664		1770
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)			12	5
Queuing Penalty (veh)			71	9

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	78	76	77	96	122	128
Average Queue (ft)	43	49	46	60	56	63
95th Queue (ft)	73	71	67	81	96	101
Link Distance (ft)		1759		700	1642	232
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: San Luis Street & Place Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	140	41	148
Average Queue (ft)	40	3	74
95th Queue (ft)	88	18	122
Link Distance (ft)	700	2463	1733
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (ft)	184	186	148	356	344	31	354
Average Queue (ft)	51	64	64	131	148	2	136
95th Queue (ft)	107	133	126	231	251	15	266
Link Distance (ft)		1714	1714	2486	2486	130	1642
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125						
Storage Blk Time (%)	0	1		2			
Queuing Penalty (veh)	0	1		0			

Network Summary

Network wide Queuing Penalty: 507

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	L	TR	L	TR
Maximum Queue (ft)	114	160	116	118	219	282	399	458
Average Queue (ft)	67	85	51	46	37	155	48	197
95th Queue (ft)	118	137	95	92	100	245	163	348
Link Distance (ft)		1859		322		1770		1551
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	50		55		160		300	
Storage Blk Time (%)	24	28	18	12		9		2
Queuing Penalty (veh)	39	24	28	18		4		1

Intersection: 2: B Street & Las Palmas Street

Movement	EB	WB	SB
Directions Served	L	R	LR
Maximum Queue (ft)	31	31	82
Average Queue (ft)	3	1	27
95th Queue (ft)	17	10	60
Link Distance (ft)			1330
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	49	92	41	24	123	50	66	56	67	52	79
Average Queue (ft)	17	33	8	4	45	15	27	11	31	23	25
95th Queue (ft)	46	73	25	19	92	41	61	31	60	49	53
Link Distance (ft)		424			619		1733			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)					0						
Queuing Penalty (veh)					0						

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	122	491	220	299
Average Queue (ft)	69	128	45	109
95th Queue (ft)	110	277	128	232
Link Distance (ft)	1759	1664		1770
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)				6
Queuing Penalty (veh)				2

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	70	78	78	79	31
Average Queue (ft)	6	38	32	38	46	16
95th Queue (ft)	24	58	55	59	71	41
Link Distance (ft)		1759		700	1642	232
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: San Luis Street & Place Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	51	22	73
Average Queue (ft)	10	1	31
95th Queue (ft)	35	7	53
Link Distance (ft)	700	2463	1733
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	150	176	190	25	213	207	75	200
Average Queue (ft)	39	69	71	2	91	105	16	102
95th Queue (ft)	97	128	127	12	169	190	52	168
Link Distance (ft)		1714	1714		2486	2486	130	1642
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			185				
Storage Blk Time (%)	0	1			0			
Queuing Penalty (veh)	2	1			0			

Network Summary

Network wide Queuing Penalty: 118

Appendix F: Existing plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	180	114	141	216	137	66	437	122	163	520	94
Future Volume (veh/h)	112	180	114	141	216	137	66	437	122	163	520	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	129	207	131	162	248	0	76	502	140	187	598	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	155	234	148	176	432		97	477	133	199	611	110
Arrive On Green	0.09	0.22	0.22	0.10	0.23	0.00	0.06	0.34	0.34	0.11	0.40	0.40
Sat Flow, veh/h	1753	1050	664	1753	1841	1560	1753	1385	386	1753	1516	274
Grp Volume(v), veh/h	129	0	338	162	248	0	76	0	642	187	0	706
Grp Sat Flow(s),veh/h/ln	1753	0	1714	1753	1841	1560	1753	0	1771	1753	0	1790
Q Serve(g_s), s	6.7	0.0	17.7	8.5	11.0	0.0	4.0	0.0	31.9	9.8	0.0	36.0
Cycle Q Clear(g_c), s	6.7	0.0	17.7	8.5	11.0	0.0	4.0	0.0	31.9	9.8	0.0	36.0
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.22	1.00		0.15
Lane Grp Cap(c), veh/h	155	0	382	176	432		97	0	610	199	0	721
V/C Ratio(X)	0.83	0.00	0.89	0.92	0.57		0.79	0.00	1.05	0.94	0.00	0.98
Avail Cap(c_a), veh/h	155	0	426	176	479		97	0	610	199	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	34.9	41.3	31.4	0.0	43.2	0.0	30.4	40.8	0.0	27.3
Incr Delay (d2), s/veh	30.1	0.0	18.4	45.5	1.4	0.0	34.0	0.0	51.0	47.2	0.0	28.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	9.1	5.8	4.9	0.0	2.6	0.0	21.5	6.7	0.0	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	0.0	53.2	86.8	32.8	0.0	77.2	0.0	81.3	87.9	0.0	55.7
LnGrp LOS	E	A	D	F	C		E	A	F	F	A	E
Approach Vol, veh/h		467			410			718			893	
Approach Delay, s/veh		58.3			54.1			80.9			62.4	
Approach LOS		E			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	37.7	14.0	25.7	9.8	43.1	12.9	26.8
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 11	31.9	* 9.3	23.0	* 5.1	37.3	* 8.2	24.1
Max Q Clear Time (g_c+I1), s	11.8	33.9	10.5	19.7	6.0	38.0	8.7	13.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	65.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	351	85	40	399	108	16	3	8	78	3	64
Future Vol, veh/h	42	351	85	40	399	108	16	3	8	78	3	64
Conflicting Peds, #/hr	15	0	10	10	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	50	418	101	48	475	129	19	4	10	93	4	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	619	0	0	529	0	0	1255	1294	479	1162	1215	490
Stage 1	-	-	-	-	-	-	579	579	-	586	586	-
Stage 2	-	-	-	-	-	-	676	715	-	576	629	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	956	-	-	1033	-	-	148	162	585	171	180	576
Stage 1	-	-	-	-	-	-	499	499	-	495	495	-
Stage 2	-	-	-	-	-	-	441	433	-	501	474	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	942	-	-	1023	-	-	115	143	579	150	159	568
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	143	-	150	159	-
Stage 1	-	-	-	-	-	-	468	468	-	462	465	-
Stage 2	-	-	-	-	-	-	361	407	-	463	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.6	34.2	60.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	155	942	-	-	1023	-	-	223
HCM Lane V/C Ratio	0.207	0.053	-	-	0.047	-	-	0.774
HCM Control Delay (s)	34.2	9	-	-	8.7	-	-	60.9
HCM Lane LOS	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.1	-	-	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	321	94	64	283	61	119	144	27	142	154	156
Future Volume (veh/h)	43	321	94	64	283	61	119	144	27	142	154	156
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		0.98	1.00		0.99	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	396	116	79	349	75	147	178	33	175	190	193
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	538	455	112	447	96	172	383	322	217	430	347
Arrive On Green	0.05	0.29	0.29	0.06	0.30	0.30	0.10	0.21	0.21	0.12	0.23	0.23
Sat Flow, veh/h	1767	1856	1570	1767	1475	317	1767	1856	1557	1767	1856	1498
Grp Volume(v), veh/h	53	396	116	79	0	424	147	178	33	175	190	193
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	0	1792	1767	1856	1557	1767	1856	1498
Q Serve(g_s), s	1.6	10.7	3.1	2.4	0.0	12.0	4.5	4.7	1.0	5.4	4.9	6.3
Cycle Q Clear(g_c), s	1.6	10.7	3.1	2.4	0.0	12.0	4.5	4.7	1.0	5.4	4.9	6.3
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	538	455	112	0	544	172	383	322	217	430	347
V/C Ratio(X)	0.60	0.74	0.25	0.70	0.00	0.78	0.85	0.46	0.10	0.81	0.44	0.56
Avail Cap(c_a), veh/h	159	826	699	201	0	840	172	823	690	217	870	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	17.8	15.1	25.5	0.0	17.6	24.7	19.3	17.8	23.7	18.2	18.8
Incr Delay (d2), s/veh	6.2	2.0	0.3	7.8	0.0	2.6	31.9	0.9	0.1	19.9	0.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.2	1.0	1.2	0.0	4.6	3.3	1.9	0.3	3.2	1.9	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	19.7	15.4	33.3	0.0	20.2	56.6	20.2	18.0	43.6	18.9	20.2
LnGrp LOS	C	B	B	C	A	C	E	C	B	D	B	C
Approach Vol, veh/h		565			503			358			558	
Approach Delay, s/veh		20.0			22.3			34.9			27.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	16.1	7.7	20.7	9.6	17.5	7.0	21.4
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 6.8	24.6	* 6.3	24.7	* 5.4	26.0	* 5	26.0
Max Q Clear Time (g_c+I1), s	7.4	6.7	4.4	12.7	6.5	8.3	3.6	14.0
Green Ext Time (p_c), s	0.0	0.9	0.0	2.2	0.0	1.6	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑	↑	
Traffic Vol, veh/h	0	101	0	290	312	0
Future Vol, veh/h	0	101	0	290	312	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	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	125	0	358	385	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	385	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	660	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	660	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	660	-
HCM Lane V/C Ratio	-	0.189	-
HCM Control Delay (s)	-	11.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.7	-

Intersection	
Int Delay, s/veh	24.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	129	172	492	125	195	600
Future Vol, veh/h	129	172	492	125	195	600
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	140	187	535	136	212	652

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1679	603	0	0	671	0
Stage 1	603	-	-	-	-	-
Stage 2	1076	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	~ 103	495	-	-	910	-
Stage 1	542	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 79	495	-	-	910	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	249	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	132.2	0	2.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	289	910	-
HCM Lane V/C Ratio	-	-	1.132	0.233	-
HCM Control Delay (s)	-	-	132.2	10.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	13.7	0.9	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	97.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	154	14	192	219	144	11	52	101	88	67	119
Future Vol, veh/h	124	154	14	192	219	144	11	52	101	88	67	119
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	153	190	17	237	270	178	14	64	125	109	83	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	32.2	188.6	18.9	29.1
HCM LOS	D	F	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	42%	35%	32%
Vol Thru, %	32%	53%	39%	24%
Vol Right, %	62%	5%	26%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	292	555	274
LT Vol	11	124	192	88
Through Vol	52	154	219	67
RT Vol	101	14	144	119
Lane Flow Rate	202	360	685	338
Geometry Grp	1	1	1	1
Degree of Util (X)	0.446	0.751	1.343	0.706
Departure Headway (Hd)	8.903	8.25	7.058	8.366
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	407	443	514	436
Service Time	6.903	6.25	5.133	6.366
HCM Lane V/C Ratio	0.496	0.813	1.333	0.775
HCM Control Delay	18.9	32.2	188.6	29.1
HCM Lane LOS	C	D	F	D
HCM 95th-tile Q	2.2	6.2	30.1	5.4

Intersection						
Int Delay, s/veh	19					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	126	261	311	143	83	216
Future Vol, veh/h	126	261	311	143	83	216
Conflicting Peds, #/hr	36	0	0	36	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	145	300	357	164	95	248

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	557	0	-	0	1065	475
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	590	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1009	-	-	-	245	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	552	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	974	-	-	-	188	568
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	68.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	974	-	-	-	364
HCM Lane V/C Ratio	0.149	-	-	-	0.944
HCM Control Delay (s)	9.3	0	-	-	68.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	586	2	0	973	34	2	0	0	77	0	189
Future Volume (vph)	86	586	2	0	973	34	2	0	0	77	0	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1			5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.99			1.00			0.90	
Flt Protected	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (prot)	1641	3280			3262			1641			1539	
Flt Permitted	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (perm)	1641	3280			3262			1641			1539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	92	630	2	0	1046	37	2	0	0	83	0	203
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	102	0
Lane Group Flow (vph)	92	632	0	0	1081	0	0	2	0	0	184	0
Confl. Peds. (#/hr)			1			2						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	7.2	44.6			32.7			4.1			13.6	
Effective Green, g (s)	7.2	44.6			32.7			4.1			13.6	
Actuated g/C Ratio	0.09	0.57			0.42			0.05			0.18	
Clearance Time (s)	4.7	5.1			5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)	152	1885			1374			86			269	
v/s Ratio Prot	c0.06	0.19			c0.33			c0.00			c0.12	
v/s Ratio Perm												
v/c Ratio	0.61	0.34			0.79			0.02			0.68	
Uniform Delay, d1	33.8	8.7			19.4			34.9			30.0	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	6.9	0.1			3.1			0.1			7.2	
Delay (s)	40.7	8.8			22.6			35.0			37.2	
Level of Service	D	A			C			C			D	
Approach Delay (s)		12.9			22.6			35.0			37.2	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	121	49	100	96	74	44	421	162	84	500	38
Future Volume (veh/h)	85	121	49	100	96	74	44	421	162	84	500	38
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	89	126	51	104	100	0	46	439	169	88	521	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	113	176	71	132	280		76	505	195	112	708	54
Arrive On Green	0.06	0.14	0.14	0.08	0.15	0.00	0.04	0.40	0.40	0.06	0.42	0.42
Sat Flow, veh/h	1739	1234	500	1739	1826	1547	1739	1256	483	1739	1674	129
Grp Volume(v), veh/h	89	0	177	104	100	0	46	0	608	88	0	561
Grp Sat Flow(s),veh/h/ln	1739	0	1734	1739	1826	1547	1739	0	1739	1739	0	1803
Q Serve(g_s), s	3.3	0.0	6.3	3.8	3.2	0.0	1.7	0.0	20.7	3.2	0.0	16.8
Cycle Q Clear(g_c), s	3.3	0.0	6.3	3.8	3.2	0.0	1.7	0.0	20.7	3.2	0.0	16.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.28	1.00		0.07
Lane Grp Cap(c), veh/h	113	0	247	132	280		76	0	700	112	0	763
V/C Ratio(X)	0.79	0.00	0.72	0.79	0.36		0.61	0.00	0.87	0.79	0.00	0.74
Avail Cap(c_a), veh/h	143	0	624	165	680		135	0	812	143	0	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	26.4	29.3	24.4	0.0	30.3	0.0	17.7	29.7	0.0	15.6
Incr Delay (d2), s/veh	20.0	0.0	4.0	18.0	0.8	0.0	7.6	0.0	9.8	19.8	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	2.7	2.1	1.3	0.0	0.8	0.0	9.0	1.9	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	0.0	30.4	47.3	25.2	0.0	37.9	0.0	27.5	49.5	0.0	19.1
LnGrp LOS	D	A	C	D	C		D	A	C	D	A	B
Approach Vol, veh/h		266			204			654			649	
Approach Delay, s/veh		36.9			36.5			28.2			23.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	31.7	9.6	14.3	7.5	33.1	8.9	15.0
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 5.3	30.1	* 6.1	23.2	* 5	30.4	* 5.3	24.0
Max Q Clear Time (g_c+I1), s	5.2	22.7	5.8	8.3	3.7	18.8	5.3	5.2
Green Ext Time (p_c), s	0.0	3.2	0.0	0.8	0.0	4.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	3.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	180	170	80	150	25	32	6	16	20	6	25
Future Vol, veh/h	21	180	170	80	150	25	32	6	16	20	6	25
Conflicting Peds, #/hr	2	0	5	5	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	194	183	86	161	27	34	6	17	22	6	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	0	382	0	0	700	699	291	678	763	163
Stage 1	-	-	-	-	-	-	337	337	-	335	335	-
Stage 2	-	-	-	-	-	-	363	362	-	343	428	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1378	-	-	1171	-	-	353	363	746	365	333	879
Stage 1	-	-	-	-	-	-	675	639	-	677	641	-
Stage 2	-	-	-	-	-	-	654	623	-	670	583	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1375	-	-	1165	-	-	312	328	742	327	301	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	328	-	327	301	-
Stage 1	-	-	-	-	-	-	661	625	-	664	592	-
Stage 2	-	-	-	-	-	-	581	576	-	637	570	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.6	16.2	13.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	379	1375	-	-	1165	-	-	465
HCM Lane V/C Ratio	0.153	0.016	-	-	0.074	-	-	0.118
HCM Control Delay (s)	16.2	7.7	-	-	8.3	-	-	13.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.2	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑	↱	↰	↑	↱
Traffic Volume (veh/h)	28	169	29	13	144	39	65	49	19	46	59	87
Future Volume (veh/h)	28	169	29	13	144	39	65	49	19	46	59	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	182	31	14	155	42	70	53	20	49	63	94
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	64	419	350	32	292	79	127	317	268	97	286	239
Arrive On Green	0.04	0.23	0.23	0.02	0.21	0.21	0.07	0.17	0.17	0.05	0.15	0.15
Sat Flow, veh/h	1767	1856	1548	1767	1406	381	1767	1856	1568	1767	1856	1552
Grp Volume(v), veh/h	30	182	31	14	0	197	70	53	20	49	63	94
Grp Sat Flow(s),veh/h/ln	1767	1856	1548	1767	0	1787	1767	1856	1568	1767	1856	1552
Q Serve(g_s), s	0.6	2.8	0.5	0.3	0.0	3.3	1.3	0.8	0.4	0.9	1.0	1.8
Cycle Q Clear(g_c), s	0.6	2.8	0.5	0.3	0.0	3.3	1.3	0.8	0.4	0.9	1.0	1.8
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	419	350	32	0	371	127	317	268	97	286	239
V/C Ratio(X)	0.47	0.43	0.09	0.43	0.00	0.53	0.55	0.17	0.07	0.51	0.22	0.39
Avail Cap(c_a), veh/h	266	1453	1212	266	0	1399	266	1392	1176	346	1475	1234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	11.0	10.1	16.1	0.0	11.7	14.9	11.7	11.6	15.3	12.3	12.6
Incr Delay (d2), s/veh	5.2	0.7	0.1	8.9	0.0	1.2	3.7	0.2	0.1	4.0	0.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.1	0.2	0.0	1.1	0.5	0.3	0.1	0.4	0.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	11.7	10.3	25.1	0.0	12.9	18.6	12.0	11.7	19.3	12.7	13.7
LnGrp LOS	C	B	B	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		243			211			143			206	
Approach Delay, s/veh		12.7			13.7			15.2			14.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	10.3	4.8	12.1	6.6	9.7	5.4	11.5
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 6.5	24.9	* 5	26.0	* 5	26.4	* 5	26.0
Max Q Clear Time (g_c+I1), s	2.9	2.8	2.3	4.8	3.3	3.8	2.6	5.3
Green Ext Time (p_c), s	0.0	0.2	0.0	1.0	0.0	0.6	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	4.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑	↑	
Traffic Vol, veh/h	0	202	0	133	101	0
Future Vol, veh/h	0	202	0	133	101	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	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	217	0	143	109	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	109	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	942	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	942	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	942	-
HCM Lane V/C Ratio	-	0.231	-
HCM Control Delay (s)	-	10	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.9	-

Intersection						
Int Delay, s/veh	6.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	149	95	563	121	45	622
Future Vol, veh/h	149	95	563	121	45	622
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	151	96	569	122	45	628

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1348	630	0	0	691	0
Stage 1	630	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	163	474	-	-	885	-
Stage 1	523	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	155	474	-	-	885	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.2	0	0.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	343	885	-
HCM Lane V/C Ratio	-	-	0.719	0.051	-
HCM Control Delay (s)	-	-	38.2	9.3	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	5.3	0.2	-

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	8	147	16	133	186	10	38	4	72	9	13	5
Future Vol, veh/h	8	147	16	133	186	10	38	4	72	9	13	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	152	16	137	192	10	39	4	74	9	13	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	11.1	8.8	8.6
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	5%	40%	33%
Vol Thru, %	4%	86%	57%	48%
Vol Right, %	63%	9%	3%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	171	329	27
LT Vol	38	8	133	9
Through Vol	4	147	186	13
RT Vol	72	16	10	5
Lane Flow Rate	118	176	339	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.159	0.228	0.431	0.041
Departure Headway (Hd)	4.858	4.646	4.574	5.26
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	770	787	677
Service Time	2.909	2.691	2.613	3.324
HCM Lane V/C Ratio	0.161	0.229	0.431	0.041
HCM Control Delay	8.8	9.1	11.1	8.6
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.6	0.9	2.2	0.1

Intersection						
Int Delay, s/veh	6.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	174	147	68	103	183
Future Vol, veh/h	55	174	147	68	103	183
Conflicting Peds, #/hr	3	0	0	3	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	185	156	72	110	195

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	231	0	-	0	498	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1331	-	-	-	530	844
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1327	-	-	-	500	842
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1327	-	-	-	676
HCM Lane V/C Ratio	0.044	-	-	-	0.45
HCM Control Delay (s)	7.8	0	-	-	14.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	930	0	3	855	62	7	5	2	102	2	116
Future Volume (vph)	49	930	0	3	855	62	7	5	2	102	2	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1641	3282		1641	3249			1649			1568	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (perm)	1641	3282		1641	3249			1649			1568	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	979	0	3	900	65	7	5	2	107	2	122
RTOR Reduction (vph)	0	0	0	0	4	0	0	2	0	0	40	0
Lane Group Flow (vph)	52	979	0	3	961	0	0	12	0	0	191	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.9	31.5		0.6	29.2			4.8			8.9	
Effective Green, g (s)	2.9	31.5		0.6	29.2			4.8			8.9	
Actuated g/C Ratio	0.04	0.48		0.01	0.44			0.07			0.14	
Clearance Time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5		3.3	3.5			3.5			3.5	
Lane Grp Cap (vph)	72	1571		14	1441			120			212	
v/s Ratio Prot	c0.03	c0.30		0.00	0.30			c0.01			c0.12	
v/s Ratio Perm												
v/c Ratio	0.72	0.62		0.21	0.67			0.10			0.90	
Uniform Delay, d1	31.1	12.7		32.4	14.5			28.5			28.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	30.3	0.8		8.4	1.2			0.4			36.7	
Delay (s)	61.4	13.6		40.7	15.7			28.9			64.7	
Level of Service	E	B		D	B			C			E	
Approach Delay (s)		16.0			15.8			28.9			64.7	
Approach LOS		B			B			C			E	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	180	114	141	216	137	66	437	122	163	520	94
Future Volume (veh/h)	112	180	114	141	216	137	66	437	122	163	520	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	129	207	131	162	248	0	76	502	140	187	598	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	161	249	158	198	474		97	673	187	225	951	171
Arrive On Green	0.09	0.24	0.24	0.11	0.26	0.00	0.06	0.25	0.25	0.13	0.32	0.32
Sat Flow, veh/h	1753	1051	665	1753	1841	1560	1753	2704	750	1753	2958	533
Grp Volume(v), veh/h	129	0	338	162	248	0	76	324	318	187	353	353
Grp Sat Flow(s),veh/h/ln	1753	0	1717	1753	1841	1560	1753	1749	1706	1753	1749	1742
Q Serve(g_s), s	5.4	0.0	13.9	6.7	8.6	0.0	3.2	12.7	12.8	7.7	12.8	12.8
Cycle Q Clear(g_c), s	5.4	0.0	13.9	6.7	8.6	0.0	3.2	12.7	12.8	7.7	12.8	12.8
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.44	1.00		0.31
Lane Grp Cap(c), veh/h	161	0	407	198	474		97	435	424	225	562	560
V/C Ratio(X)	0.80	0.00	0.83	0.82	0.52		0.78	0.74	0.75	0.83	0.63	0.63
Avail Cap(c_a), veh/h	172	0	531	200	599		153	553	539	229	628	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	0.0	27.0	32.2	23.7	0.0	34.7	25.7	25.8	31.6	21.4	21.4
Incr Delay (d2), s/veh	21.7	0.0	8.6	22.3	0.9	0.0	12.8	5.2	5.6	21.9	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	6.3	3.9	3.6	0.0	1.6	5.6	5.5	4.5	5.2	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	35.5	54.5	24.6	0.0	47.4	31.0	31.4	53.5	23.7	23.8
LnGrp LOS	D	A	D	D	C		D	C	C	D	C	C
Approach Vol, veh/h		467			410			718			893	
Approach Delay, s/veh		40.8			36.4			32.9			30.0	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	24.3	13.1	22.7	8.8	29.7	11.5	24.3
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.7	23.5	* 8.5	23.0	* 6.5	26.7	* 7.3	24.2
Max Q Clear Time (g_c+I1), s	9.7	14.8	8.7	15.9	5.2	14.8	7.4	10.6
Green Ext Time (p_c), s	0.0	3.5	0.0	1.2	0.0	4.8	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	351	85	40	399	108	16	3	8	78	3	64
Future Volume (veh/h)	42	351	85	40	399	108	16	3	8	78	3	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	418	101	48	475	129	19	4	10	93	4	76
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	92	667	553	89	664	551	42	53	133	136	13	252
Arrive On Green	0.05	0.36	0.36	0.05	0.36	0.36	0.02	0.11	0.11	0.08	0.17	0.17
Sat Flow, veh/h	1767	1856	1540	1767	1856	1540	1767	470	1174	1767	79	1505
Grp Volume(v), veh/h	50	418	101	48	475	129	19	0	14	93	0	80
Grp Sat Flow(s),veh/h/ln	1767	1856	1540	1767	1856	1540	1767	0	1644	1767	0	1585
Q Serve(g_s), s	1.2	8.2	2.0	1.2	9.7	2.6	0.5	0.0	0.3	2.3	0.0	2.0
Cycle Q Clear(g_c), s	1.2	8.2	2.0	1.2	9.7	2.6	0.5	0.0	0.3	2.3	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.95
Lane Grp Cap(c), veh/h	92	667	553	89	664	551	42	0	187	136	0	265
V/C Ratio(X)	0.54	0.63	0.18	0.54	0.72	0.23	0.46	0.00	0.08	0.68	0.00	0.30
Avail Cap(c_a), veh/h	201	1028	853	201	1028	853	201	0	1015	233	0	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	11.7	9.7	20.4	12.2	9.9	21.2	0.0	17.5	19.8	0.0	16.1
Incr Delay (d2), s/veh	4.9	1.0	0.2	5.0	1.5	0.2	7.6	0.0	0.2	5.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.7	0.5	0.5	3.3	0.7	0.3	0.0	0.1	1.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	12.6	9.8	25.4	13.7	10.1	28.8	0.0	17.6	25.7	0.0	16.7
LnGrp LOS	C	B	A	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		569			652			33			173	
Approach Delay, s/veh		13.3			13.8			24.1			21.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	9.6	6.4	20.4	5.2	12.0	6.5	20.4
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5.8	27.2	* 5	24.4	* 5	28.0	* 5	24.4
Max Q Clear Time (g_c+I1), s	4.3	2.3	3.2	10.2	2.5	4.0	3.2	11.7
Green Ext Time (p_c), s	0.0	0.0	0.0	2.4	0.0	0.4	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	129	172	492	125	195	600
Future Volume (veh/h)	129	172	492	125	195	600
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	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	140	187	535	136	212	652
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	162	216	596	152	256	1160
Arrive On Green	0.23	0.23	0.42	0.42	0.15	0.63
Sat Flow, veh/h	699	934	1416	360	1753	1841
Grp Volume(v), veh/h	328	0	0	671	212	652
Grp Sat Flow(s),veh/h/ln	1638	0	0	1776	1753	1841
Q Serve(g_s), s	12.8	0.0	0.0	23.4	7.8	13.5
Cycle Q Clear(g_c), s	12.8	0.0	0.0	23.4	7.8	13.5
Prop In Lane	0.43	0.57		0.20	1.00	
Lane Grp Cap(c), veh/h	379	0	0	748	256	1160
V/C Ratio(X)	0.87	0.00	0.00	0.90	0.83	0.56
Avail Cap(c_a), veh/h	541	0	0	874	310	1348
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	24.6	0.0	0.0	17.9	27.6	7.0
Incr Delay (d2), s/veh	10.0	0.0	0.0	10.8	14.3	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	5.6	0.0	0.0	10.4	4.1	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.6	0.0	0.0	28.8	41.9	7.5
LnGrp LOS	C	A	A	C	D	A
Approach Vol, veh/h	328		671			864
Approach Delay, s/veh	34.6		28.8			15.9
Approach LOS	C		C			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	13.9	32.7	46.6	20.0
Change Period (Y+Rc), s	* 4.2	4.6	4.6	4.6
Max Green Setting (Gmax), s	* 12	32.8	48.8	22.0
Max Q Clear Time (g_c+I1), s	9.8	25.4	15.5	14.8
Green Ext Time (p_c), s	0.1	2.6	4.9	0.6

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	27.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	154	14	192	219	144	11	52	101	88	67	119
Future Vol, veh/h	124	154	14	192	219	144	11	52	101	88	67	119
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	153	190	17	237	270	178	14	64	125	109	83	147
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	16.8	37.3	16.6	24.9
HCM LOS	C	E	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	7%	100%	0%	100%	0%	32%
Vol Thru, %	32%	0%	92%	0%	60%	24%
Vol Right, %	62%	0%	8%	0%	40%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	124	168	192	363	274
LT Vol	11	124	0	192	0	88
Through Vol	52	0	154	0	219	67
RT Vol	101	0	14	0	144	119
Lane Flow Rate	202	153	207	237	448	338
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.435	0.365	0.461	0.53	0.903	0.683
Departure Headway (Hd)	7.732	8.574	7.996	8.054	7.252	7.392
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	468	421	452	450	502	490
Service Time	5.763	6.288	5.709	5.766	4.963	5.392
HCM Lane V/C Ratio	0.432	0.363	0.458	0.527	0.892	0.69
HCM Control Delay	16.6	16.1	17.4	19.5	46.7	24.9
HCM Lane LOS	C	C	C	C	E	C
HCM 95th-tile Q	2.2	1.6	2.4	3	10.3	5.1

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	126	261	311	143	83	216
Future Vol, veh/h	126	261	311	143	83	216
Conflicting Peds, #/hr	36	0	0	36	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	250	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	145	300	357	164	95	248

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	557	0	-	0	1065	475
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	590	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1009	-	-	-	245	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	552	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	974	-	-	-	188	568
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	23.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	974	-	-	-	188	568
HCM Lane V/C Ratio	0.149	-	-	-	0.507	0.437
HCM Control Delay (s)	9.3	0	-	-	42.4	16.2
HCM Lane LOS	A	A	-	-	E	C
HCM 95th %tile Q(veh)	0.5	-	-	-	2.5	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	121	49	100	96	74	44	421	162	84	500	38
Future Volume (veh/h)	85	121	49	100	96	74	44	421	162	84	500	38
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	89	126	51	104	100	0	46	439	169	88	521	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	123	198	80	133	304		82	708	270	122	1018	78
Arrive On Green	0.07	0.16	0.16	0.08	0.17	0.00	0.05	0.29	0.29	0.07	0.31	0.31
Sat Flow, veh/h	1739	1235	500	1739	1826	1547	1739	2455	937	1739	3265	250
Grp Volume(v), veh/h	89	0	177	104	100	0	46	309	299	88	276	285
Grp Sat Flow(s),veh/h/ln	1739	0	1735	1739	1826	1547	1739	1735	1657	1739	1735	1781
Q Serve(g_s), s	2.5	0.0	4.8	3.0	2.4	0.0	1.3	7.7	7.9	2.5	6.5	6.6
Cycle Q Clear(g_c), s	2.5	0.0	4.8	3.0	2.4	0.0	1.3	7.7	7.9	2.5	6.5	6.6
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.57	1.00		0.14
Lane Grp Cap(c), veh/h	123	0	278	133	304		82	500	478	122	541	555
V/C Ratio(X)	0.72	0.00	0.64	0.78	0.33		0.56	0.62	0.63	0.72	0.51	0.51
Avail Cap(c_a), veh/h	287	0	794	322	872		183	832	795	287	936	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	19.7	22.8	18.5	0.0	23.4	15.5	15.5	22.9	14.2	14.2
Incr Delay (d2), s/veh	7.8	0.0	2.5	9.5	0.7	0.0	5.9	2.0	2.1	7.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.9	1.4	1.0	0.0	0.6	2.8	2.8	1.2	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.0	22.2	32.2	19.1	0.0	29.3	17.4	17.6	30.5	15.3	15.3
LnGrp LOS	C	A	C	C	B		C	B	B	C	B	B
Approach Vol, veh/h		266			204			654			649	
Approach Delay, s/veh		25.0			25.8			18.4			17.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	20.3	8.6	13.2	7.1	21.5	8.3	13.5
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 8.3	24.1	* 9.3	23.0	* 5.3	27.1	* 8.3	24.0
Max Q Clear Time (g_c+I1), s	4.5	9.9	5.0	6.8	3.3	8.6	4.5	4.4
Green Ext Time (p_c), s	0.1	4.6	0.1	0.8	0.0	4.8	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	180	170	80	150	25	32	6	16	20	6	25
Future Volume (veh/h)	21	180	170	80	150	25	32	6	16	20	6	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	194	183	86	161	27	34	6	17	22	6	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	417	349	144	514	432	71	67	191	49	43	191
Arrive On Green	0.03	0.22	0.22	0.08	0.28	0.28	0.04	0.16	0.16	0.03	0.14	0.14
Sat Flow, veh/h	1767	1856	1555	1767	1856	1558	1767	427	1210	1767	294	1323
Grp Volume(v), veh/h	23	194	183	86	161	27	34	0	23	22	0	33
Grp Sat Flow(s),veh/h/ln	1767	1856	1555	1767	1856	1558	1767	0	1638	1767	0	1617
Q Serve(g_s), s	0.4	3.1	3.6	1.6	2.4	0.4	0.7	0.0	0.4	0.4	0.0	0.6
Cycle Q Clear(g_c), s	0.4	3.1	3.6	1.6	2.4	0.4	0.7	0.0	0.4	0.4	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.82
Lane Grp Cap(c), veh/h	51	417	349	144	514	432	71	0	258	49	0	234
V/C Ratio(X)	0.45	0.47	0.52	0.60	0.31	0.06	0.48	0.00	0.09	0.45	0.00	0.14
Avail Cap(c_a), veh/h	271	1181	990	450	1369	1150	297	0	1260	256	0	1207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	11.6	11.8	15.3	9.9	9.2	16.2	0.0	12.4	16.6	0.0	12.9
Incr Delay (d2), s/veh	6.2	0.8	1.2	3.9	0.3	0.1	4.9	0.0	0.1	6.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	1.0	0.7	0.7	0.1	0.3	0.0	0.1	0.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	12.4	13.0	19.3	10.2	9.2	21.1	0.0	12.6	23.0	0.0	13.2
LnGrp LOS	C	B	B	B	B	A	C	A	B	C	A	B
Approach Vol, veh/h		400			274			57			55	
Approach Delay, s/veh		13.3			13.0			17.7			17.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	10.0	7.0	12.4	5.6	9.6	5.2	14.2
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5	26.6	* 8.8	22.0	* 5.8	25.8	* 5.3	25.5
Max Q Clear Time (g_c+I1), s	2.4	2.4	3.6	5.6	2.7	2.6	2.4	4.4
Green Ext Time (p_c), s	0.0	0.1	0.1	1.5	0.0	0.1	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	149	95	563	121	45	622
Future Volume (veh/h)	149	95	563	121	45	622
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	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	151	96	569	122	45	628
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	192	122	689	148	82	1110
Arrive On Green	0.19	0.19	0.48	0.48	0.05	0.61
Sat Flow, veh/h	1002	637	1445	310	1725	1811
Grp Volume(v), veh/h	248	0	0	691	45	628
Grp Sat Flow(s),veh/h/ln	1646	0	0	1755	1725	1811
Q Serve(g_s), s	6.7	0.0	0.0	16.0	1.2	9.7
Cycle Q Clear(g_c), s	6.7	0.0	0.0	16.0	1.2	9.7
Prop In Lane	0.61	0.39		0.18	1.00	
Lane Grp Cap(c), veh/h	315	0	0	836	82	1110
V/C Ratio(X)	0.79	0.00	0.00	0.83	0.55	0.57
Avail Cap(c_a), veh/h	771	0	0	1292	184	1688
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	18.1	0.0	0.0	10.6	21.9	5.4
Incr Delay (d2), s/veh	4.4	0.0	0.0	2.7	5.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	4.9	0.6	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	0.0	0.0	13.3	27.6	5.8
LnGrp LOS	C	A	A	B	C	A
Approach Vol, veh/h	248		691			673
Approach Delay, s/veh	22.5		13.3			7.3
Approach LOS	C		B			A

Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	6.4	27.0			33.4		13.6
Change Period (Y+Rc), s	* 4.2	4.6			4.6		4.6
Max Green Setting (Gmax), s	* 5	34.6			43.8		22.0
Max Q Clear Time (g_c+I1), s	3.2	18.0			11.7		8.7
Green Ext Time (p_c), s	0.0	4.4			4.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	147	16	133	186	10	38	4	72	9	13	5
Future Vol, veh/h	8	147	16	133	186	10	38	4	72	9	13	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	152	16	137	192	10	39	4	74	9	13	5
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.6	9.8	8.9	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	33%
Vol Thru, %	4%	0%	90%	0%	95%	48%
Vol Right, %	63%	0%	10%	0%	5%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	8	163	133	196	27
LT Vol	38	8	0	133	0	9
Through Vol	4	0	147	0	186	13
RT Vol	72	0	16	0	10	5
Lane Flow Rate	118	8	168	137	202	28
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.16	0.013	0.242	0.212	0.283	0.041
Departure Headway (Hd)	4.887	5.752	5.179	5.576	5.037	5.292
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	731	620	691	643	711	673
Service Time	2.934	3.504	2.931	3.322	2.783	3.353
HCM Lane V/C Ratio	0.161	0.013	0.243	0.213	0.284	0.042
HCM Control Delay	8.9	8.6	9.6	9.8	9.8	8.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0	0.9	0.8	1.2	0.1

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	174	147	68	103	183
Future Vol, veh/h	55	174	147	68	103	183
Conflicting Peds, #/hr	3	0	0	3	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	250	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	185	156	72	110	195

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	231	0	-	0	498	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1331	-	-	-	530	844
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1327	-	-	-	500	842
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1327	-	-	-	500	842
HCM Lane V/C Ratio	0.044	-	-	-	0.219	0.231
HCM Control Delay (s)	7.8	0	-	-	14.2	10.6
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	0.9

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	153	333	120	251	229	110	185	180	239	328	335
Average Queue (ft)	66	134	72	116	8	55	107	120	111	163	117
95th Queue (ft)	115	239	128	200	75	102	169	172	193	279	255
Link Distance (ft)		1847		309			412	412		1553	1553
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250		55		120	160			300		
Storage Blk Time (%)		1	22	35			1			1	
Queuing Penalty (veh)		1	77	97			1			1	

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	55	269	54	96	265	77	47	22	106	46
Average Queue (ft)	31	109	27	33	105	33	14	7	40	20
95th Queue (ft)	56	199	53	68	191	62	39	22	78	44
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100	120		50	100		100	
Storage Blk Time (%)		9			22	1			0	
Queuing Penalty (veh)		11			33	4			0	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	69	240	87	189	281	250	264	68	212	174	99
Average Queue (ft)	24	118	26	51	121	81	74	17	90	76	49
95th Queue (ft)	56	197	60	136	218	159	156	43	145	148	81
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)							0				
Queuing Penalty (veh)							0				
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		2			7	4	0		1	0	
Queuing Penalty (veh)		3			5	7	0		3	1	

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	55
Average Queue (ft)	38
95th Queue (ft)	59
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	179	326	219	307
Average Queue (ft)	111	211	114	149
95th Queue (ft)	174	326	196	251
Link Distance (ft)	1759	1664		1302
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)			14	9
Queuing Penalty (veh)			82	18

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	75	95	91	120	98	119
Average Queue (ft)	37	55	45	69	58	59
95th Queue (ft)	60	87	73	104	95	91
Link Distance (ft)		1759		688	1642	232
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: San Luis Street & Place Road

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	160	54	90	100
Average Queue (ft)	63	8	46	51
95th Queue (ft)	122	33	75	83
Link Distance (ft)	688	2463		1410
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (ft)	169	261	210	300	310	31	207
Average Queue (ft)	64	89	75	147	162	4	120
95th Queue (ft)	132	198	168	259	288	19	197
Link Distance (ft)		1714	1714	2486	2486	130	1642
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125						
Storage Blk Time (%)	4	4		5			
Queuing Penalty (veh)	11	3		0			

Network Summary

Network wide Queuing Penalty: 358

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	113	180	108	144	160	68	141	218	257	296	270
Average Queue (ft)	55	80	51	60	5	23	79	118	75	144	75
95th Queue (ft)	102	132	94	110	53	50	144	196	150	245	186
Link Distance (ft)		1847		309			412	412		1553	1553
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250		55		120	160			300		
Storage Blk Time (%)			10	16			0			0	
Queuing Penalty (veh)			17	28			0			0	

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	89	140	79	75	162	54	62	46	67	20
Average Queue (ft)	25	57	35	41	52	14	18	7	15	6
95th Queue (ft)	61	105	61	73	114	40	45	27	41	21
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100	120		50	100		100	
Storage Blk Time (%)		1			10	0				
Queuing Penalty (veh)		2			11	0				

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	70	110	19	24	99	177	65	23	72	53	64
Average Queue (ft)	22	41	4	11	38	43	24	4	25	21	34
95th Queue (ft)	52	89	15	28	76	96	49	18	55	51	60
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)					0	0					
Queuing Penalty (veh)					0	0					

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	103
Average Queue (ft)	46
95th Queue (ft)	78
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	SB	SB	B26
Directions Served	LR	TR	L	T	T
Maximum Queue (ft)	206	377	219	515	26
Average Queue (ft)	105	156	49	161	1
95th Queue (ft)	179	288	131	355	9
Link Distance (ft)	1759	1664		1302	412
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			0	9	
Queuing Penalty (veh)			0	4	

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	77	68	79	96	55
Average Queue (ft)	3	47	37	46	48	20
95th Queue (ft)	18	72	57	74	76	46
Link Distance (ft)		1759		688	1642	232
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: San Luis Street & Place Road

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	72	22	79	99
Average Queue (ft)	15	1	42	48
95th Queue (ft)	50	7	67	78
Link Distance (ft)	688	2463		1410
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	184	193	156	24	279	286	53	271
Average Queue (ft)	44	74	71	4	99	118	19	126
95th Queue (ft)	101	134	144	17	187	222	49	250
Link Distance (ft)		1714	1714		2486	2486	130	1642
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			185				
Storage Blk Time (%)		2			2			
Queuing Penalty (veh)		1			0			

Network Summary

Network wide Queuing Penalty: 64

Appendix G: Near Term plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	180	114	160	216	144	66	597	127	174	754	94
Future Volume (veh/h)	112	180	114	160	216	144	66	597	127	174	754	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	129	207	131	184	248	0	76	686	146	200	867	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	151	187	119	187	367		86	676	144	202	843	105
Arrive On Green	0.09	0.18	0.18	0.11	0.20	0.00	0.05	0.46	0.46	0.12	0.53	0.53
Sat Flow, veh/h	1753	1049	664	1753	1841	1560	1753	1471	313	1753	1604	200
Grp Volume(v), veh/h	129	0	338	184	248	0	76	0	832	200	0	975
Grp Sat Flow(s),veh/h/ln	1753	0	1712	1753	1841	1560	1753	0	1784	1753	0	1804
Q Serve(g_s), s	10.5	0.0	25.9	15.2	18.1	0.0	6.2	0.0	66.6	16.5	0.0	76.2
Cycle Q Clear(g_c), s	10.5	0.0	25.9	15.2	18.1	0.0	6.2	0.0	66.6	16.5	0.0	76.2
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	151	0	306	187	367		86	0	820	202	0	948
V/C Ratio(X)	0.85	0.00	1.11	0.98	0.68		0.89	0.00	1.02	0.99	0.00	1.03
Avail Cap(c_a), veh/h	178	0	306	187	367		86	0	820	202	0	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.3	0.0	59.6	64.6	53.7	0.0	68.5	0.0	39.2	64.1	0.0	34.4
Incr Delay (d2), s/veh	27.7	0.0	82.7	60.3	4.9	0.0	60.9	0.0	35.3	60.5	0.0	36.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	18.2	9.9	8.9	0.0	4.2	0.0	36.3	10.7	0.0	41.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	0.0	142.2	124.9	58.7	0.0	129.5	0.0	74.5	124.6	0.0	71.1
LnGrp LOS	F	A	F	F	E		F	A	F	F	A	F
Approach Vol, veh/h		467			432			908			1175	
Approach Delay, s/veh		128.6			86.9			79.1			80.2	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.4	72.4	20.2	31.0	11.8	82.0	17.2	34.0
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 17	66.6	* 16	25.9	* 7.1	76.2	* 15	26.7
Max Q Clear Time (g_c+I1), s	18.5	68.6	17.2	27.9	8.2	78.2	12.5	20.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	88.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	369	85	40	429	108	16	3	8	78	3	64
Future Vol, veh/h	42	369	85	40	429	108	16	3	8	78	3	64
Conflicting Peds, #/hr	15	0	10	10	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	50	439	101	48	511	129	19	4	10	93	4	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	655	0	0	550	0	0	1312	1351	500	1219	1272	526
Stage 1	-	-	-	-	-	-	600	600	-	622	622	-
Stage 2	-	-	-	-	-	-	712	751	-	597	650	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	927	-	-	1015	-	-	135	150	569	156	167	550
Stage 1	-	-	-	-	-	-	486	488	-	473	477	-
Stage 2	-	-	-	-	-	-	422	417	-	488	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	914	-	-	1005	-	-	104	132	564	137	147	542
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	132	-	137	147	-
Stage 1	-	-	-	-	-	-	455	457	-	441	448	-
Stage 2	-	-	-	-	-	-	343	392	-	450	434	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.6	37.6	76
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	142	914	-	-	1005	-	-	205
HCM Lane V/C Ratio	0.226	0.055	-	-	0.047	-	-	0.842
HCM Control Delay (s)	37.6	9.2	-	-	8.8	-	-	76
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0.1	-	-	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	331	98	68	294	67	121	179	31	151	212	173
Future Volume (veh/h)	47	331	98	68	294	67	121	179	31	151	212	173
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		0.98	1.00		0.99	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	58	409	121	84	363	83	149	221	38	186	262	214
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	92	555	469	113	452	103	163	382	321	230	452	366
Arrive On Green	0.05	0.30	0.30	0.06	0.31	0.31	0.09	0.21	0.21	0.13	0.24	0.24
Sat Flow, veh/h	1767	1856	1570	1767	1456	333	1767	1856	1557	1767	1856	1501
Grp Volume(v), veh/h	58	409	121	84	0	446	149	221	38	186	262	214
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	0	1789	1767	1856	1557	1767	1856	1501
Q Serve(g_s), s	1.9	11.6	3.4	2.7	0.0	13.4	4.9	6.3	1.2	6.0	7.3	7.3
Cycle Q Clear(g_c), s	1.9	11.6	3.4	2.7	0.0	13.4	4.9	6.3	1.2	6.0	7.3	7.3
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	555	469	113	0	556	163	382	321	230	452	366
V/C Ratio(X)	0.63	0.74	0.26	0.75	0.00	0.80	0.91	0.58	0.12	0.81	0.58	0.59
Avail Cap(c_a), veh/h	151	775	656	200	0	797	163	750	629	236	826	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	18.4	15.5	26.9	0.0	18.5	26.3	20.9	18.9	24.7	19.5	19.5
Incr Delay (d2), s/veh	6.9	2.3	0.3	9.4	0.0	3.9	45.6	1.4	0.2	18.4	1.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.7	1.1	1.4	0.0	5.4	4.0	2.6	0.4	3.5	2.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	20.7	15.8	36.3	0.0	22.4	71.9	22.3	19.0	43.1	20.6	21.0
LnGrp LOS	C	C	B	D	A	C	E	C	B	D	C	C
Approach Vol, veh/h		588			530			408			662	
Approach Delay, s/veh		21.0			24.6			40.1			27.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	16.6	7.9	22.1	9.6	18.8	7.2	22.7
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 7.8	23.6	* 6.6	24.4	* 5.4	26.0	* 5	26.0
Max Q Clear Time (g_c+I1), s	8.0	8.3	4.7	13.6	6.9	9.3	3.9	15.4
Green Ext Time (p_c), s	0.0	1.1	0.0	2.1	0.0	2.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	0	331	378	0
Future Vol, veh/h	0	101	0	331	378	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	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	125	0	409	467	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	467	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	594	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	594	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	594	-
HCM Lane V/C Ratio	-	0.21	-
HCM Control Delay (s)	-	12.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.8	-

Intersection						
Int Delay, s/veh	47.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	120	193	634	126	216	819
Future Vol, veh/h	120	193	634	126	216	819
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	130	210	689	137	235	890

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2118	758	0	0	826	0
Stage 1	758	-	-	-	-	-
Stage 2	1360	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	~ 55	404	-	-	796	-
Stage 1	459	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 39	404	-	-	796	-
Mov Cap-2 Maneuver	~ 125	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	166	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 313.5	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	218	796	-
HCM Lane V/C Ratio	-	-	1.561	0.295	-
HCM Control Delay (s)	-	-	$ 313.5	11.4	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	21.3	1.2	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	34.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	125	179	12	49	221	171	9	40	15	90	67	133
Future Vol, veh/h	125	179	12	49	221	171	9	40	15	90	67	133
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	154	221	15	60	273	211	11	49	19	111	83	164
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	27.1	49.2	13	23.9
HCM LOS	D	E	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	40%	11%	31%
Vol Thru, %	62%	57%	50%	23%
Vol Right, %	23%	4%	39%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	316	441	290
LT Vol	9	125	49	90
Through Vol	40	179	221	67
RT Vol	15	12	171	133
Lane Flow Rate	79	390	544	358
Geometry Grp	1	1	1	1
Degree of Util (X)	0.179	0.742	0.939	0.689
Departure Headway (Hd)	8.142	6.851	6.34	6.93
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	441	531	577	523
Service Time	6.188	4.875	4.34	4.947
HCM Lane V/C Ratio	0.179	0.734	0.943	0.685
HCM Control Delay	13	27.1	49.2	23.9
HCM Lane LOS	B	D	E	C
HCM 95th-tile Q	0.6	6.3	12.1	5.3

Intersection	
Int Delay, s/veh	193.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	237	10	46	290	133	33	107	41	64	213	90
Future Vol, veh/h	72	237	10	46	290	133	33	107	41	64	213	90
Conflicting Peds, #/hr	36	0	0	0	0	36	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	83	272	11	53	333	153	38	123	47	74	245	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	522	0	0	283	0	0	1134	1072	278	1081	1001	446
Stage 1	-	-	-	-	-	-	444	444	-	552	552	-
Stage 2	-	-	-	-	-	-	690	628	-	529	449	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1039	-	-	1274	-	-	179	220	758	195	~ 242	610
Stage 1	-	-	-	-	-	-	591	573	-	516	513	-
Stage 2	-	-	-	-	-	-	434	474	-	531	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1003	-	-	1274	-	-	-	181	758	~ 72	~ 199	589
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	181	-	~ 72	~ 199	-
Stage 1	-	-	-	-	-	-	533	517	-	449	467	-
Stage 2	-	-	-	-	-	-	160	431	-	342	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.8		$ 700.1
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1003	-	-	1274	-	-	174
HCM Lane V/C Ratio	-	0.083	-	-	0.042	-	-	2.424
HCM Control Delay (s)	-	8.9	0	-	7.9	0	-	$ 700.1
HCM Lane LOS	-	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.1	-	-	35.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	861	2	0	1280	18	2	0	0	88	0	205
Future Volume (vph)	27	861	2	0	1280	18	2	0	0	88	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1			5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			1.00			1.00			0.91	
Flt Protected	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (prot)	1641	3281			3274			1641			1541	
Flt Permitted	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (perm)	1641	3281			3274			1641			1541	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	29	926	2	0	1376	19	2	0	0	95	0	220
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	83	0
Lane Group Flow (vph)	29	928	0	0	1395	0	0	2	0	0	232	0
Confl. Peds. (#/hr)			1			2						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.8	59.1			51.6			4.3			19.5	
Effective Green, g (s)	2.8	59.1			51.6			4.3			19.5	
Actuated g/C Ratio	0.03	0.60			0.53			0.04			0.20	
Clearance Time (s)	4.7	5.1			5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)	46	1974			1720			71			306	
v/s Ratio Prot	0.02	c0.28			c0.43			c0.00			c0.15	
v/s Ratio Perm												
v/c Ratio	0.63	0.47			0.81			0.03			0.76	
Uniform Delay, d1	47.2	10.9			19.3			44.9			37.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	25.5	0.2			3.1			0.2			10.5	
Delay (s)	72.7	11.1			22.4			45.1			47.6	
Level of Service	E	B			C			D			D	
Approach Delay (s)		12.9			22.4			45.1			47.6	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	121	49	116	96	85	44	631	169	94	706	38
Future Volume (veh/h)	85	121	49	116	96	85	44	631	169	94	706	38
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	89	126	51	121	100	0	46	657	176	98	735	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	112	157	64	149	271		63	711	190	123	938	51
Arrive On Green	0.06	0.13	0.13	0.09	0.15	0.00	0.04	0.51	0.51	0.07	0.55	0.55
Sat Flow, veh/h	1739	1234	500	1739	1826	1547	1739	1387	372	1739	1716	93
Grp Volume(v), veh/h	89	0	177	121	100	0	46	0	833	98	0	775
Grp Sat Flow(s),veh/h/ln	1739	0	1734	1739	1826	1547	1739	0	1759	1739	0	1809
Q Serve(g_s), s	5.0	0.0	9.9	6.8	4.9	0.0	2.6	0.0	43.6	5.5	0.0	33.8
Cycle Q Clear(g_c), s	5.0	0.0	9.9	6.8	4.9	0.0	2.6	0.0	43.6	5.5	0.0	33.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.21	1.00		0.05
Lane Grp Cap(c), veh/h	112	0	221	149	271		63	0	901	123	0	989
V/C Ratio(X)	0.79	0.00	0.80	0.81	0.37		0.73	0.00	0.92	0.80	0.00	0.78
Avail Cap(c_a), veh/h	128	0	401	163	459		94	0	968	135	0	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	42.1	44.7	38.1	0.0	47.4	0.0	22.5	45.5	0.0	17.9
Incr Delay (d2), s/veh	25.3	0.0	6.9	24.5	0.9	0.0	15.0	0.0	14.1	25.9	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	4.6	3.9	2.2	0.0	1.4	0.0	19.9	3.2	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	0.0	49.0	69.2	39.0	0.0	62.4	0.0	36.6	71.4	0.0	22.1
LnGrp LOS	E	A	D	E	D		E	A	D	E	A	C
Approach Vol, veh/h		266			221			879			873	
Approach Delay, s/veh		56.4			55.5			37.9			27.6	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	56.7	13.2	17.8	8.3	60.1	11.1	19.9
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 7.7	54.7	* 9.3	23.0	* 5.4	57.0	* 7.3	25.0
Max Q Clear Time (g_c+I1), s	7.5	45.6	8.8	11.9	4.6	35.8	7.0	6.9
Green Ext Time (p_c), s	0.0	5.3	0.0	0.7	0.0	8.5	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	203	170	80	185	25	32	6	16	20	6	25
Future Vol, veh/h	21	203	170	80	185	25	32	6	16	20	6	25
Conflicting Peds, #/hr	2	0	5	5	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	218	183	86	199	27	34	6	17	22	6	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	406	0	0	762	761	315	740	825	201
Stage 1	-	-	-	-	-	-	361	361	-	373	373	-
Stage 2	-	-	-	-	-	-	401	400	-	367	452	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1334	-	-	1147	-	-	320	334	723	331	307	837
Stage 1	-	-	-	-	-	-	655	624	-	646	617	-
Stage 2	-	-	-	-	-	-	624	600	-	650	569	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1331	-	-	1142	-	-	282	302	720	295	277	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	302	-	295	277	-
Stage 1	-	-	-	-	-	-	641	610	-	634	569	-
Stage 2	-	-	-	-	-	-	552	554	-	617	556	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.3	17.4	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	1331	-	-	1142	-	-	427
HCM Lane V/C Ratio	0.167	0.017	-	-	0.075	-	-	0.128
HCM Control Delay (s)	17.4	7.8	-	-	8.4	-	-	14.7
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.2	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	179	36	19	158	51	71	104	26	59	115	102
Future Volume (veh/h)	34	179	36	19	158	51	71	104	26	59	115	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	37	192	39	20	170	55	76	112	28	63	124	110
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	76	443	370	45	297	96	132	318	269	115	301	252
Arrive On Green	0.04	0.24	0.24	0.03	0.22	0.22	0.07	0.17	0.17	0.07	0.16	0.16
Sat Flow, veh/h	1767	1856	1549	1767	1343	434	1767	1856	1568	1767	1856	1553
Grp Volume(v), veh/h	37	192	39	20	0	225	76	112	28	63	124	110
Grp Sat Flow(s),veh/h/ln	1767	1856	1549	1767	0	1777	1767	1856	1568	1767	1856	1553
Q Serve(g_s), s	0.7	3.1	0.7	0.4	0.0	4.0	1.5	1.9	0.5	1.2	2.1	2.3
Cycle Q Clear(g_c), s	0.7	3.1	0.7	0.4	0.0	4.0	1.5	1.9	0.5	1.2	2.1	2.3
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	443	370	45	0	393	132	318	269	115	301	252
V/C Ratio(X)	0.49	0.43	0.11	0.45	0.00	0.57	0.58	0.35	0.10	0.55	0.41	0.44
Avail Cap(c_a), veh/h	251	1368	1142	251	0	1310	251	1273	1076	361	1389	1163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	11.4	10.5	16.9	0.0	12.3	15.8	12.9	12.3	16.0	13.3	13.3
Incr Delay (d2), s/veh	4.7	0.7	0.1	6.9	0.0	1.3	4.0	0.7	0.2	4.0	0.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.0	0.2	0.2	0.0	1.3	0.7	0.7	0.2	0.6	0.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	12.1	10.6	23.9	0.0	13.6	19.7	13.5	12.5	20.0	14.2	14.5
LnGrp LOS	C	B	B	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		268			245			216			297	
Approach Delay, s/veh		13.1			14.4			15.6			15.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	10.7	5.1	13.0	6.8	10.3	5.7	12.4
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 7.2	24.2	* 5	26.0	* 5	26.4	* 5	26.0
Max Q Clear Time (g_c+I1), s	3.2	3.9	2.4	5.1	3.5	4.3	2.7	6.0
Green Ext Time (p_c), s	0.0	0.6	0.0	1.1	0.0	1.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑	↑	
Traffic Vol, veh/h	0	202	0	201	170	0
Future Vol, veh/h	0	202	0	201	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	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	217	0	216	183	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	183	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	857	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	857	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	857	-
HCM Lane V/C Ratio	-	0.253	-
HCM Control Delay (s)	-	10.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1	-

Intersection						
Int Delay, s/veh	9.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	117	120	754	123	70	812
Future Vol, veh/h	117	120	754	123	70	812
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	118	121	762	124	71	820

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1786	824	0	0	886	0
Stage 1	824	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	~ 87	367	-	-	748	-
Stage 1	424	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 79	367	-	-	748	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	424	-	-	-	-	-
Stage 2	330	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	75.2	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	264	748	-
HCM Lane V/C Ratio	-	-	0.907	0.095	-
HCM Control Delay (s)	-	-	75.2	10.3	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	8.1	0.3	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	176	16	47	192	15	26	3	11	12	13	8
Future Vol, veh/h	9	176	16	47	192	15	26	3	11	12	13	8
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	181	16	48	198	15	27	3	11	12	13	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	9.4	8.3	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	4%	19%	36%
Vol Thru, %	7%	88%	76%	39%
Vol Right, %	28%	8%	6%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	201	254	33
LT Vol	26	9	47	12
Through Vol	3	176	192	13
RT Vol	11	16	15	8
Lane Flow Rate	41	207	262	34
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.252	0.317	0.047
Departure Headway (Hd)	4.998	4.374	4.357	4.972
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	716	823	827	720
Service Time	3.031	2.393	2.377	3.004
HCM Lane V/C Ratio	0.057	0.252	0.317	0.047
HCM Control Delay	8.3	8.9	9.4	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1	1.4	0.1

Intersection	
Int Delay, s/veh	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	160	11	26	145	53	34	124	35	67	215	76
Future Vol, veh/h	18	160	11	26	145	53	34	124	35	67	215	76
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	19	170	12	28	154	56	36	132	37	71	229	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	213	0	0	182	0	0	607	483	176	540	461	185
Stage 1	-	-	-	-	-	-	214	214	-	241	241	-
Stage 2	-	-	-	-	-	-	393	269	-	299	220	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1351	-	-	1387	-	-	407	482	865	451	496	855
Stage 1	-	-	-	-	-	-	786	724	-	760	704	-
Stage 2	-	-	-	-	-	-	630	685	-	708	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1347	-	-	1387	-	-	223	462	865	326	475	853
Mov Cap-2 Maneuver	-	-	-	-	-	-	223	462	-	326	475	-
Stage 1	-	-	-	-	-	-	773	712	-	746	686	-
Stage 2	-	-	-	-	-	-	371	667	-	543	707	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.9	21.6	35.8
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	418	1347	-	-	1387	-	-	479
HCM Lane V/C Ratio	0.491	0.014	-	-	0.02	-	-	0.795
HCM Control Delay (s)	21.6	7.7	0	-	7.6	0	-	35.8
HCM Lane LOS	C	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	2.6	0	-	-	0.1	-	-	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1207	0	3	1182	34	7	5	2	108	2	122
Future Volume (vph)	38	1207	0	3	1182	34	7	5	2	108	2	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1641	3282		1641	3268			1649			1568	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (perm)	1641	3282		1641	3268			1649			1568	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	1271	0	3	1244	36	7	5	2	114	2	128
RTOR Reduction (vph)	0	0	0	0	1	0	0	2	0	0	33	0
Lane Group Flow (vph)	40	1271	0	3	1279	0	0	12	0	0	211	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.7	47.1		0.7	45.1			5.4			16.0	
Effective Green, g (s)	2.7	47.1		0.7	45.1			5.4			16.0	
Actuated g/C Ratio	0.03	0.53		0.01	0.51			0.06			0.18	
Clearance Time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5		3.3	3.5			3.5			3.5	
Lane Grp Cap (vph)	49	1732		12	1652			99			281	
v/s Ratio Prot	c0.02	0.39		0.00	c0.39			c0.01			c0.13	
v/s Ratio Perm												
v/c Ratio	0.82	0.73		0.25	0.77			0.12			0.75	
Uniform Delay, d1	43.0	16.2		44.0	17.9			39.7			34.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	64.8	1.7		11.8	2.4			0.7			11.1	
Delay (s)	107.8	17.9		55.8	20.3			40.3			45.8	
Level of Service	F	B		E	C			D			D	
Approach Delay (s)		20.7			20.4			40.3			45.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	180	114	160	216	144	66	597	127	174	754	94
Future Volume (veh/h)	112	180	114	160	216	144	66	597	127	174	754	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	129	207	131	184	248	0	76	686	146	200	867	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	161	245	155	185	455		97	815	173	208	1086	135
Arrive On Green	0.09	0.23	0.23	0.11	0.25	0.00	0.06	0.28	0.28	0.12	0.35	0.35
Sat Flow, veh/h	1753	1051	665	1753	1841	1560	1753	2869	610	1753	3128	390
Grp Volume(v), veh/h	129	0	338	184	248	0	76	418	414	200	485	490
Grp Sat Flow(s),veh/h/ln	1753	0	1717	1753	1841	1560	1753	1749	1731	1753	1749	1769
Q Serve(g_s), s	5.7	0.0	14.8	8.2	9.2	0.0	3.4	17.6	17.7	8.9	19.7	19.7
Cycle Q Clear(g_c), s	5.7	0.0	14.8	8.2	9.2	0.0	3.4	17.6	17.7	8.9	19.7	19.7
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.35	1.00		0.22
Lane Grp Cap(c), veh/h	161	0	400	185	455		97	497	492	208	607	614
V/C Ratio(X)	0.80	0.00	0.84	0.99	0.55		0.78	0.84	0.84	0.96	0.80	0.80
Avail Cap(c_a), veh/h	163	0	503	185	563		112	537	531	208	633	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	28.7	35.1	25.7	0.0	36.6	26.4	26.4	34.4	23.1	23.1
Incr Delay (d2), s/veh	24.0	0.0	10.4	63.9	1.1	0.0	26.5	11.7	11.9	51.8	7.5	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	6.9	6.7	4.0	0.0	2.1	8.5	8.4	6.6	8.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	0.0	39.2	99.0	26.8	0.0	63.1	38.1	38.3	86.2	30.6	30.6
LnGrp LOS	E	A	D	F	C		E	D	D	F	C	C
Approach Vol, veh/h		467			432			908			1175	
Approach Delay, s/veh		44.7			57.5			40.3			40.1	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	28.1	13.0	23.4	9.0	33.1	11.9	24.5
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 9.3	24.1	* 8.3	23.0	* 5	28.4	* 7.3	24.0
Max Q Clear Time (g_c+I1), s	10.9	19.7	10.2	16.8	5.4	21.7	7.7	11.2
Green Ext Time (p_c), s	0.0	2.6	0.0	1.1	0.0	4.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	43.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	369	85	40	429	108	16	3	8	78	3	64
Future Volume (veh/h)	42	369	85	40	429	108	16	3	8	78	3	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	439	101	48	511	129	19	4	10	93	4	76
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	92	696	578	90	694	576	107	40	101	138	8	156
Arrive On Green	0.05	0.38	0.38	0.05	0.37	0.37	0.06	0.09	0.09	0.08	0.10	0.10
Sat Flow, veh/h	1767	1856	1541	1767	1856	1541	1767	470	1174	1767	79	1505
Grp Volume(v), veh/h	50	439	101	48	511	129	19	0	14	93	0	80
Grp Sat Flow(s),veh/h/ln	1767	1856	1541	1767	1856	1541	1767	0	1644	1767	0	1585
Q Serve(g_s), s	1.2	8.3	1.1	1.1	10.2	1.3	0.4	0.0	0.3	2.2	0.0	2.0
Cycle Q Clear(g_c), s	1.2	8.3	1.1	1.1	10.2	1.3	0.4	0.0	0.3	2.2	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.95
Lane Grp Cap(c), veh/h	92	696	578	90	694	576	107	0	142	138	0	165
V/C Ratio(X)	0.54	0.63	0.17	0.54	0.74	0.22	0.18	0.00	0.10	0.67	0.00	0.49
Avail Cap(c_a), veh/h	206	968	804	206	968	804	206	0	995	206	0	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	11.0	3.0	19.9	11.6	2.8	19.2	0.0	18.1	19.3	0.0	18.2
Incr Delay (d2), s/veh	4.8	0.9	0.1	4.9	1.9	0.2	0.8	0.0	0.3	5.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.7	0.5	0.5	3.4	0.6	0.2	0.0	0.1	1.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	11.9	3.1	24.8	13.5	3.0	20.0	0.0	18.4	24.9	0.0	20.4
LnGrp LOS	C	B	A	C	B	A	B	A	B	C	A	C
Approach Vol, veh/h		590			688			33			173	
Approach Delay, s/veh		11.5			12.3			19.3			22.8	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	8.3	6.4	20.7	6.8	9.1	6.4	20.7
Change Period (Y+Rc), s	4.2	* 4.6	* 4.2	4.6	4.2	* 4.6	* 4.2	4.6
Max Green Setting (Gmax), s	5.0	* 26	* 5	22.4	5.0	* 26	* 5	22.4
Max Q Clear Time (g_c+I1), s	4.2	2.3	3.1	10.3	2.4	4.0	3.2	12.2
Green Ext Time (p_c), s	0.0	0.0	0.0	2.4	0.0	0.4	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	120	193	634	126	216	819
Future Volume (veh/h)	120	193	634	126	216	819
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	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	130	210	689	137	235	890
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	157	253	910	181	289	1966
Arrive On Green	0.25	0.25	0.31	0.31	0.16	0.56
Sat Flow, veh/h	621	1003	3000	578	1753	3589
Grp Volume(v), veh/h	341	0	414	412	235	890
Grp Sat Flow(s),veh/h/ln	1629	0	1749	1737	1753	1749
Q Serve(g_s), s	9.8	0.0	10.6	10.6	6.4	7.4
Cycle Q Clear(g_c), s	9.8	0.0	10.6	10.6	6.4	7.4
Prop In Lane	0.38	0.62		0.33	1.00	
Lane Grp Cap(c), veh/h	411	0	547	543	289	1966
V/C Ratio(X)	0.83	0.00	0.76	0.76	0.81	0.45
Avail Cap(c_a), veh/h	722	0	697	693	346	2381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	15.4	15.4	20.0	6.4
Incr Delay (d2), s/veh	4.3	0.0	3.6	3.7	11.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	4.0	4.0	3.2	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.9	0.0	19.0	19.0	31.8	6.5
LnGrp LOS	C	A	B	B	C	A
Approach Vol, veh/h	341		826			1125
Approach Delay, s/veh	21.9		19.0			11.8
Approach LOS	C		B			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.4	20.1				32.5		17.1
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 9.8	19.8				33.8		22.0
Max Q Clear Time (g_c+I1), s	8.4	12.6				9.4		11.8
Green Ext Time (p_c), s	0.1	2.9				6.6		0.8

Intersection Summary			
HCM 6th Ctrl Delay			15.9
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	237	10	46	290	133	33	107	41	64	213	90
Future Volume (veh/h)	72	237	10	46	290	133	33	107	41	64	213	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	83	272	11	53	333	153	38	123	47	74	245	103
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	106	578	23	82	370	170	66	360	138	175	426	179
Arrive On Green	0.06	0.33	0.33	0.05	0.31	0.31	0.04	0.28	0.28	0.10	0.34	0.34
Sat Flow, veh/h	1767	1766	71	1767	1178	541	1767	1279	489	1767	1240	521
Grp Volume(v), veh/h	83	0	283	53	0	486	38	0	170	74	0	348
Grp Sat Flow(s),veh/h/ln	1767	0	1838	1767	0	1719	1767	0	1768	1767	0	1762
Q Serve(g_s), s	3.2	0.0	8.4	2.0	0.0	18.5	1.4	0.0	5.2	2.7	0.0	11.1
Cycle Q Clear(g_c), s	3.2	0.0	8.4	2.0	0.0	18.5	1.4	0.0	5.2	2.7	0.0	11.1
Prop In Lane	1.00		0.04	1.00		0.31	1.00		0.28	1.00		0.30
Lane Grp Cap(c), veh/h	106	0	602	82	0	540	66	0	498	175	0	605
V/C Ratio(X)	0.78	0.00	0.47	0.65	0.00	0.90	0.57	0.00	0.34	0.42	0.00	0.58
Avail Cap(c_a), veh/h	132	0	602	129	0	552	129	0	498	175	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	18.3	32.1	0.0	22.5	32.4	0.0	19.6	29.0	0.0	18.4
Incr Delay (d2), s/veh	21.2	0.0	0.6	8.3	0.0	17.6	7.5	0.0	1.9	7.3	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.3	1.0	0.0	9.4	0.7	0.0	2.2	1.4	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	0.0	18.9	40.4	0.0	40.1	40.0	0.0	21.4	36.3	0.0	22.4
LnGrp LOS	D	A	B	D	A	D	D	A	C	D	A	C
Approach Vol, veh/h		366			539			208			422	
Approach Delay, s/veh		26.6			40.1			24.8			24.8	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	23.5	7.4	26.6	6.8	27.7	8.3	25.7
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2
Max Green Setting (Gmax), s	* 6.8	* 19	* 5	* 22	* 5	* 21	* 5.1	* 22
Max Q Clear Time (g_c+I1), s	4.7	7.2	4.0	10.4	3.4	13.1	5.2	20.5
Green Ext Time (p_c), s	0.0	0.6	0.0	1.2	0.0	1.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	121	49	116	96	85	44	631	169	94	706	38
Future Volume (veh/h)	85	121	49	116	96	85	44	631	169	94	706	38
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	89	126	51	121	100	0	46	657	176	98	735	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	115	182	74	155	311		79	917	246	125	1224	67
Arrive On Green	0.07	0.15	0.15	0.09	0.17	0.00	0.05	0.34	0.34	0.07	0.37	0.37
Sat Flow, veh/h	1739	1235	500	1739	1826	1547	1739	2706	724	1739	3346	182
Grp Volume(v), veh/h	89	0	177	121	100	0	46	421	412	98	381	394
Grp Sat Flow(s),veh/h/ln	1739	0	1735	1739	1826	1547	1739	1735	1696	1739	1735	1793
Q Serve(g_s), s	2.9	0.0	5.6	3.9	2.8	0.0	1.5	12.2	12.2	3.2	10.3	10.3
Cycle Q Clear(g_c), s	2.9	0.0	5.6	3.9	2.8	0.0	1.5	12.2	12.2	3.2	10.3	10.3
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.43	1.00		0.10
Lane Grp Cap(c), veh/h	115	0	255	155	311		79	588	575	125	634	656
V/C Ratio(X)	0.78	0.00	0.69	0.78	0.32		0.58	0.72	0.72	0.78	0.60	0.60
Avail Cap(c_a), veh/h	221	0	693	275	787		154	750	733	233	829	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	23.3	25.7	21.0	0.0	27.0	16.6	16.6	26.3	14.8	14.8
Incr Delay (d2), s/veh	10.6	0.0	3.5	8.2	0.6	0.0	6.7	3.2	3.3	10.2	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.3	1.8	1.1	0.0	0.7	4.7	4.6	1.6	3.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	0.0	26.8	33.9	21.6	0.0	33.7	19.8	19.9	36.4	16.3	16.2
LnGrp LOS	D	A	C	C	C		C	B	B	D	B	B
Approach Vol, veh/h		266			221			879			873	
Approach Delay, s/veh		30.3			28.3			20.6			18.5	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	25.3	9.8	13.6	7.3	26.9	8.5	14.9
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 7.7	24.9	* 9.1	23.0	* 5.1	27.5	* 7.3	24.8
Max Q Clear Time (g_c+I1), s	5.2	14.2	5.9	7.6	3.5	12.3	4.9	4.8
Green Ext Time (p_c), s	0.0	5.3	0.1	0.8	0.0	6.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	203	170	80	185	25	32	6	16	20	6	25
Future Volume (veh/h)	21	203	170	80	185	25	32	6	16	20	6	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	218	183	86	199	27	34	6	17	22	6	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	442	371	148	544	457	72	39	111	49	23	104
Arrive On Green	0.03	0.24	0.24	0.08	0.29	0.29	0.04	0.09	0.09	0.03	0.08	0.08
Sat Flow, veh/h	1767	1856	1556	1767	1856	1559	1767	427	1210	1767	294	1323
Grp Volume(v), veh/h	23	218	183	86	199	27	34	0	23	22	0	33
Grp Sat Flow(s),veh/h/ln	1767	1856	1556	1767	1856	1559	1767	0	1638	1767	0	1617
Q Serve(g_s), s	0.4	3.2	3.2	1.5	2.7	0.4	0.6	0.0	0.4	0.4	0.0	0.6
Cycle Q Clear(g_c), s	0.4	3.2	3.2	1.5	2.7	0.4	0.6	0.0	0.4	0.4	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.82
Lane Grp Cap(c), veh/h	51	442	371	148	544	457	72	0	150	49	0	127
V/C Ratio(X)	0.45	0.49	0.49	0.58	0.37	0.06	0.47	0.00	0.15	0.45	0.00	0.26
Avail Cap(c_a), veh/h	297	1295	1086	493	1501	1262	280	0	1382	280	0	1365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	10.4	10.4	13.9	8.8	8.0	14.8	0.0	13.2	15.1	0.0	13.7
Incr Delay (d2), s/veh	6.1	0.9	1.0	3.6	0.4	0.1	4.7	0.0	0.5	6.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.8	0.6	0.7	0.1	0.3	0.0	0.1	0.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	11.2	11.4	17.5	9.2	8.1	19.5	0.0	13.7	21.3	0.0	14.7
LnGrp LOS	C	B	B	B	A	A	B	A	B	C	A	B
Approach Vol, veh/h		424			312			57			55	
Approach Delay, s/veh		11.8			11.4			17.1			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	7.5	6.8	12.1	5.5	7.1	5.1	13.8
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5	26.6	* 8.8	22.0	* 5	26.6	* 5.3	25.5
Max Q Clear Time (g_c+I1), s	2.4	2.4	3.5	5.2	2.6	2.6	2.4	4.7
Green Ext Time (p_c), s	0.0	0.1	0.1	1.6	0.0	0.1	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	117	120	754	123	70	812
Future Volume (veh/h)	117	120	754	123	70	812
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	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	118	121	762	124	71	820
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	154	158	1109	180	121	1920
Arrive On Green	0.19	0.19	0.37	0.37	0.07	0.56
Sat Flow, veh/h	798	819	3053	482	1725	3532
Grp Volume(v), veh/h	240	0	442	444	71	820
Grp Sat Flow(s),veh/h/ln	1624	0	1721	1724	1725	1721
Q Serve(g_s), s	5.2	0.0	8.0	8.0	1.5	5.1
Cycle Q Clear(g_c), s	5.2	0.0	8.0	8.0	1.5	5.1
Prop In Lane	0.49	0.50		0.28	1.00	
Lane Grp Cap(c), veh/h	313	0	644	645	121	1920
V/C Ratio(X)	0.77	0.00	0.69	0.69	0.59	0.43
Avail Cap(c_a), veh/h	967	0	913	915	233	2683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	9.7	9.7	16.7	4.7
Incr Delay (d2), s/veh	3.9	0.0	1.3	1.3	4.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.2	2.2	0.6	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.0	0.0	11.0	11.0	21.1	4.9
LnGrp LOS	B	A	B	B	C	A
Approach Vol, veh/h	240		886			891
Approach Delay, s/veh	18.0		11.0			6.2
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.8	18.4				25.2		11.7
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 5	19.6				28.8		22.0
Max Q Clear Time (g_c+I1), s	3.5	10.0				7.1		7.2
Green Ext Time (p_c), s	0.0	3.8				5.7		0.6

Intersection Summary			
HCM 6th Ctrl Delay			9.7
HCM 6th LOS			A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	160	11	26	145	53	34	124	35	67	215	76
Future Volume (veh/h)	18	160	11	26	145	53	34	124	35	67	215	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	19	170	12	28	154	56	36	132	37	71	229	81
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	43	328	23	60	261	95	74	228	64	244	340	120
Arrive On Green	0.02	0.19	0.19	0.03	0.20	0.20	0.04	0.16	0.16	0.14	0.26	0.26
Sat Flow, veh/h	1767	1712	121	1767	1295	471	1767	1394	391	1767	1309	463
Grp Volume(v), veh/h	19	0	182	28	0	210	36	0	169	71	0	310
Grp Sat Flow(s),veh/h/ln	1767	0	1833	1767	0	1767	1767	0	1785	1767	0	1772
Q Serve(g_s), s	0.4	0.0	3.2	0.6	0.0	3.8	0.7	0.0	3.1	1.3	0.0	5.6
Cycle Q Clear(g_c), s	0.4	0.0	3.2	0.6	0.0	3.8	0.7	0.0	3.1	1.3	0.0	5.6
Prop In Lane	1.00		0.07	1.00		0.27	1.00		0.22	1.00		0.26
Lane Grp Cap(c), veh/h	43	0	351	60	0	356	74	0	293	244	0	461
V/C Ratio(X)	0.45	0.00	0.52	0.47	0.00	0.59	0.48	0.00	0.58	0.29	0.00	0.67
Avail Cap(c_a), veh/h	248	0	1134	248	0	1093	248	0	1024	288	0	1056
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	12.9	16.9	0.0	12.9	16.7	0.0	13.7	13.8	0.0	11.8
Incr Delay (d2), s/veh	7.2	0.0	1.2	5.5	0.0	1.6	4.8	0.0	1.8	0.7	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.1	0.3	0.0	1.3	0.3	0.0	1.1	0.4	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	14.1	22.4	0.0	14.4	21.5	0.0	15.5	14.4	0.0	13.5
LnGrp LOS	C	A	B	C	A	B	C	A	B	B	A	B
Approach Vol, veh/h		201			238			205			381	
Approach Delay, s/veh		15.1			15.4			16.6			13.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	10.0	5.4	11.0	5.7	13.4	5.1	11.4
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2
Max Green Setting (Gmax), s	* 5.8	* 20	* 5	* 22	* 5	* 21	* 5	* 22
Max Q Clear Time (g_c+I1), s	3.3	5.1	2.6	5.2	2.7	7.6	2.4	5.8
Green Ext Time (p_c), s	0.0	0.7	0.0	0.8	0.0	1.5	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	WB	B16	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	T	L	T	TR	L	T	TR
Maximum Queue (ft)	114	354	120	430	240	136	219	280	246	202	268	269
Average Queue (ft)	67	187	100	177	53	5	53	152	167	118	174	164
95th Queue (ft)	109	306	143	334	212	46	126	225	233	197	245	239
Link Distance (ft)		1847		310		754		1776	1776		1553	1553
Upstream Blk Time (%)				4								
Queuing Penalty (veh)				21								
Storage Bay Dist (ft)	250		55		120		160			300		
Storage Blk Time (%)		4	52	33	0		1	7				
Queuing Penalty (veh)		5	187	100	0		2	4				

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	74	211	200	75	295	200	26	43	66	85
Average Queue (ft)	27	97	29	25	112	27	13	6	35	25
95th Queue (ft)	59	191	89	58	243	88	33	24	60	59
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100	120		50	100		100	
Storage Blk Time (%)		6			16	0				0
Queuing Penalty (veh)		8			24	2				0

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	238	394	67	188	255	142	218	45	172	228	98
Average Queue (ft)	43	120	26	56	141	72	99	14	99	124	56
95th Queue (ft)	117	233	55	127	228	118	174	36	172	218	91
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		3		1	13	0	2		2	6	
Queuing Penalty (veh)		5		4	9	0	3		6	19	

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	98
Average Queue (ft)	38
95th Queue (ft)	71
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	245	223	182	203	206	234
Average Queue (ft)	121	113	107	100	75	90
95th Queue (ft)	201	180	167	164	164	170
Link Distance (ft)	1747	1670	1670		1776	1776
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)				8	2	
Queuing Penalty (veh)				31	5	

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	143	281	55	247
Average Queue (ft)	74	112	33	72
95th Queue (ft)	116	193	56	149
Link Distance (ft)	1747	687	1642	232
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	136	158	94	400	96	137	116	206
Average Queue (ft)	63	93	34	187	28	63	44	96
95th Queue (ft)	114	152	73	305	69	103	81	181
Link Distance (ft)		687		2463		1574		1410
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)				3				
Queuing Penalty (veh)				1				

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (ft)	81	199	179	324	384	31	273
Average Queue (ft)	21	95	91	174	184	4	148
95th Queue (ft)	51	172	165	316	339	20	252
Link Distance (ft)		1714	1714	2486	2486	130	1642
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125						
Storage Blk Time (%)		3		7			
Queuing Penalty (veh)		1		0			

Network Summary

Network wide Queuing Penalty: 436

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	L	T	TR	L	T	TR
Maximum Queue (ft)	154	161	119	137	111	292	306	129	261	242
Average Queue (ft)	58	80	62	67	36	127	155	63	144	127
95th Queue (ft)	112	138	115	115	81	230	270	109	214	205
Link Distance (ft)		1847		310		1776	1776		1553	1553
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	250		55		160			300		
Storage Blk Time (%)			25	18		5				
Queuing Penalty (veh)			46	36		2				

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	31	94	96	94	119	31	49	44	43	67
Average Queue (ft)	15	44	34	40	45	8	23	9	8	18
95th Queue (ft)	39	85	72	75	89	28	47	30	28	41
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100	120		50	100		100	
Storage Blk Time (%)		0	0		6	0				
Queuing Penalty (veh)		0	0		6	0				

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	47	132	39	45	104	53	111	45	74	98	77
Average Queue (ft)	21	44	8	16	50	31	42	12	39	47	37
95th Queue (ft)	41	101	27	38	94	58	80	38	72	85	68
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)					0						
Queuing Penalty (veh)					0						

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	97
Average Queue (ft)	55
95th Queue (ft)	83
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	141	224	188	132	163	211
Average Queue (ft)	76	91	95	51	64	89
95th Queue (ft)	121	152	155	102	128	156
Link Distance (ft)	1747	1670	1670		1776	1776
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)				2	2	
Queuing Penalty (veh)				7	1	

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	103	68	55	31
Average Queue (ft)	47	47	23	20
95th Queue (ft)	75	66	47	44
Link Distance (ft)	1747	687	1642	232
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	53	138	78	111	52	96	92	135
Average Queue (ft)	13	55	23	51	18	47	45	75
95th Queue (ft)	44	104	55	91	49	87	75	129
Link Distance (ft)		687		2463		1574		1410
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	183	405	353	24	462	474	69	263
Average Queue (ft)	37	159	156	4	173	201	13	130
95th Queue (ft)	97	305	286	17	322	352	44	226
Link Distance (ft)		1714	1714		2486	2486	130	1642
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			185				
Storage Blk Time (%)	0	9			6			
Queuing Penalty (veh)	0	4			0			

Network Summary

Network wide Queuing Penalty: 102

Appendix H: Cumulative Year 2044 No Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	218	143	167	268	167	83	618	59	166	838	118
Future Volume (veh/h)	141	218	143	167	268	167	83	618	59	166	838	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	162	251	164	192	308	0	95	710	68	191	963	136
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	180	213	139	161	359		88	739	71	202	807	114
Arrive On Green	0.10	0.21	0.21	0.09	0.20	0.00	0.05	0.45	0.45	0.12	0.51	0.51
Sat Flow, veh/h	1753	1035	676	1753	1841	1560	1753	1654	158	1753	1577	223
Grp Volume(v), veh/h	162	0	415	192	308	0	95	0	778	191	0	1099
Grp Sat Flow(s),veh/h/ln	1753	0	1711	1753	1841	1560	1753	0	1812	1753	0	1800
Q Serve(g_s), s	13.2	0.0	29.9	13.3	23.5	0.0	7.3	0.0	60.3	15.7	0.0	74.2
Cycle Q Clear(g_c), s	13.2	0.0	29.9	13.3	23.5	0.0	7.3	0.0	60.3	15.7	0.0	74.2
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.09	1.00		0.12
Lane Grp Cap(c), veh/h	180	0	353	161	359		88	0	810	202	0	921
V/C Ratio(X)	0.90	0.00	1.18	1.19	0.86		1.08	0.00	0.96	0.95	0.00	1.19
Avail Cap(c_a), veh/h	180	0	353	161	359		88	0	810	202	0	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.3	0.0	57.6	65.8	56.4	0.0	68.8	0.0	38.9	63.7	0.0	35.4
Incr Delay (d2), s/veh	39.9	0.0	105.0	132.7	18.3	0.0	118.1	0.0	22.6	48.0	0.0	97.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	23.1	11.8	12.7	0.0	6.2	0.0	31.2	9.7	0.0	56.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.2	0.0	162.5	198.5	74.7	0.0	186.9	0.0	61.5	111.7	0.0	133.1
LnGrp LOS	F	A	F	F	E		F	A	E	F	A	F
Approach Vol, veh/h		577			500			873			1290	
Approach Delay, s/veh		146.2			122.2			75.1			129.9	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.4	70.6	18.0	35.0	12.0	80.0	19.6	33.4
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 17	64.8	* 13	29.9	* 7.3	74.2	* 15	28.3
Max Q Clear Time (g_c+I1), s	17.7	62.3	15.3	31.9	9.3	76.2	15.2	25.5
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	116.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	53	440	502	136	98	81
Future Vol, veh/h	53	440	502	136	98	81
Conflicting Peds, #/hr	15	0	0	15	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	62	512	584	158	114	94

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	757	0	-	0	1235	599
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	636	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	849	-	-	-	194	500
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	837	-	-	-	175	493
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	519	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	66.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	837	-	-	-	247
HCM Lane V/C Ratio	0.074	-	-	-	0.843
HCM Control Delay (s)	9.6	-	-	-	66.5
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑	↱	↰	↑	↱
Traffic Volume (veh/h)	49	399	117	81	347	72	125	193	34	170	246	180
Future Volume (veh/h)	49	399	117	81	347	72	125	193	34	170	246	180
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		0.98	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	464	136	94	403	84	145	224	40	198	286	209
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	570	482	121	483	101	184	392	329	245	456	370
Arrive On Green	0.05	0.31	0.31	0.07	0.33	0.33	0.10	0.21	0.21	0.14	0.25	0.25
Sat Flow, veh/h	1767	1856	1570	1767	1485	309	1767	1856	1558	1767	1856	1502
Grp Volume(v), veh/h	57	464	136	94	0	487	145	224	40	198	286	209
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	0	1794	1767	1856	1558	1767	1856	1502
Q Serve(g_s), s	2.0	14.8	4.2	3.4	0.0	16.1	5.1	6.9	1.3	7.0	8.8	7.8
Cycle Q Clear(g_c), s	2.0	14.8	4.2	3.4	0.0	16.1	5.1	6.9	1.3	7.0	8.8	7.8
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	570	482	121	0	584	184	392	329	245	456	370
V/C Ratio(X)	0.65	0.81	0.28	0.78	0.00	0.83	0.79	0.57	0.12	0.81	0.63	0.57
Avail Cap(c_a), veh/h	143	776	657	188	0	795	270	753	632	353	840	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	20.5	16.8	29.4	0.0	20.0	28.0	22.6	20.4	26.8	21.5	21.2
Incr Delay (d2), s/veh	7.8	4.8	0.3	10.4	0.0	5.7	9.1	1.3	0.2	8.8	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.5	1.4	1.7	0.0	6.9	2.5	2.9	0.5	3.3	3.7	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	25.4	17.2	39.8	0.0	25.7	37.1	24.0	20.6	35.5	22.9	22.5
LnGrp LOS	D	C	B	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		657			581			409			693	
Approach Delay, s/veh		24.7			28.0			28.3			26.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	18.1	8.6	24.3	10.9	20.4	7.4	25.4
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 13	26.0	* 6.8	26.8	* 9.8	29.0	* 5.2	28.4
Max Q Clear Time (g_c+I1), s	9.0	8.9	5.4	16.8	7.1	10.8	4.0	18.1
Green Ext Time (p_c), s	0.2	1.2	0.0	2.4	0.1	2.2	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	67.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	125	205	597	157	245	907
Future Vol, veh/h	125	205	597	157	245	907
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	136	223	649	171	266	986

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2253	735	0	0	820	0
Stage 1	735	-	-	-	-	-
Stage 2	1518	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	~ 45	416	-	-	800	-
Stage 1	471	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 30	416	-	-	800	-
Mov Cap-2 Maneuver	~ 103	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	~ 132	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 446.9	0	2.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	193	800	-
HCM Lane V/C Ratio	-	-	1.859	0.333	-
HCM Control Delay (s)	-	-	$ 446.9	11.7	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	25.9	1.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	31.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	125	206	12	54	234	176	9	40	16	92	67	136
Future Vol, veh/h	125	206	12	54	234	176	9	40	16	92	67	136
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	145	240	14	63	272	205	10	47	19	107	78	158
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	25.9	44.7	12.6	21.6
HCM LOS	D	E	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	36%	12%	31%
Vol Thru, %	62%	60%	50%	23%
Vol Right, %	25%	3%	38%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	343	464	295
LT Vol	9	125	54	92
Through Vol	40	206	234	67
RT Vol	16	12	176	136
Lane Flow Rate	76	399	540	343
Geometry Grp	1	1	1	1
Degree of Util (X)	0.168	0.733	0.918	0.646
Departure Headway (Hd)	8.019	6.62	6.128	6.783
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	450	542	588	528
Service Time	6.019	4.712	4.211	4.873
HCM Lane V/C Ratio	0.169	0.736	0.918	0.65
HCM Control Delay	12.6	25.9	44.7	21.6
HCM Lane LOS	B	D	E	C
HCM 95th-tile Q	0.6	6.1	11.5	4.6

Intersection	
Int Delay, s/veh	493.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	288	13	46	352	154	33	109	41	57	187	73
Future Vol, veh/h	88	288	13	46	352	154	33	109	41	57	187	73
Conflicting Peds, #/hr	36	0	0	0	0	36	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	101	331	15	53	405	177	38	125	47	66	215	84

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	346	0	0	1290	1265	339	1263	1184	530
Stage 1	-	-	-	-	-	-	541	541	-	636	636	-
Stage 2	-	-	-	-	-	-	749	724	-	627	548	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	957	-	-	1207	-	-	140	168	701	146	~ 188	547
Stage 1	-	-	-	-	-	-	523	519	-	464	470	-
Stage 2	-	-	-	-	-	-	402	429	-	470	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	924	-	-	1207	-	-	-	131	701	~ 16	~ 146	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	131	-	~ 16	~ 146	-
Stage 1	-	-	-	-	-	-	452	448	-	387	423	-
Stage 2	-	-	-	-	-	-	155	387	-	273	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.7		$ 2239.4
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	924	-	-	1207	-	-	64
HCM Lane V/C Ratio	-	0.109	-	-	0.044	-	-	5.693
HCM Control Delay (s)	-	9.4	0	-	8.1	0		$ 2239.4
HCM Lane LOS	-	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.4	-	-	0.1	-	-	40.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	869	3	0	1353	18	3	0	0	88	0	216
Future Volume (vph)	27	869	3	0	1353	18	3	0	0	88	0	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1			5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			1.00			1.00			0.90	
Flt Protected	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (prot)	1641	3280			3274			1641			1539	
Flt Permitted	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (perm)	1641	3280			3274			1641			1539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	29	934	3	0	1455	19	3	0	0	95	0	232
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	70	0
Lane Group Flow (vph)	29	937	0	0	1474	0	0	3	0	0	257	0
Confl. Peds. (#/hr)			1			2						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.8	66.0			58.5			8.9			25.8	
Effective Green, g (s)	2.8	66.0			58.5			8.9			25.8	
Actuated g/C Ratio	0.02	0.57			0.50			0.08			0.22	
Clearance Time (s)	4.7	5.1			5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)	39	1866			1651			125			342	
v/s Ratio Prot	0.02	c0.29			c0.45			c0.00			c0.17	
v/s Ratio Perm												
v/c Ratio	0.74	0.50			0.89			0.02			0.75	
Uniform Delay, d1	56.2	15.1			25.9			49.5			42.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	55.1	0.3			6.7			0.1			9.3	
Delay (s)	111.3	15.3			32.6			49.6			51.4	
Level of Service	F	B			C			D			D	
Approach Delay (s)		18.2			32.6			49.6			51.4	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	140	62	107	115	82	55	666	63	51	755	48
Future Volume (veh/h)	107	140	62	107	115	82	55	666	63	51	755	48
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	111	146	65	111	120	0	57	694	66	53	786	50
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	139	181	80	139	276		74	824	78	71	850	54
Arrive On Green	0.08	0.15	0.15	0.08	0.15	0.00	0.04	0.50	0.50	0.04	0.50	0.50
Sat Flow, veh/h	1739	1196	532	1739	1826	1547	1739	1642	156	1739	1698	108
Grp Volume(v), veh/h	111	0	211	111	120	0	57	0	760	53	0	836
Grp Sat Flow(s),veh/h/ln	1739	0	1728	1739	1826	1547	1739	0	1798	1739	0	1806
Q Serve(g_s), s	5.6	0.0	10.6	5.6	5.4	0.0	2.9	0.0	32.7	2.7	0.0	38.6
Cycle Q Clear(g_c), s	5.6	0.0	10.6	5.6	5.4	0.0	2.9	0.0	32.7	2.7	0.0	38.6
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.09	1.00		0.06
Lane Grp Cap(c), veh/h	139	0	261	139	276		74	0	903	71	0	904
V/C Ratio(X)	0.80	0.00	0.81	0.80	0.43		0.78	0.00	0.84	0.75	0.00	0.92
Avail Cap(c_a), veh/h	149	0	455	157	488		103	0	956	103	0	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	36.8	40.6	34.6	0.0	42.5	0.0	19.3	42.6	0.0	20.8
Incr Delay (d2), s/veh	24.5	0.0	6.1	22.4	1.1	0.0	21.1	0.0	7.1	15.8	0.0	14.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	4.8	3.2	2.4	0.0	1.7	0.0	14.0	1.4	0.0	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	0.0	43.0	63.0	35.7	0.0	63.7	0.0	26.3	58.3	0.0	35.1
LnGrp LOS	E	A	D	E	D		E	A	C	E	A	D
Approach Vol, veh/h		322			231			817			889	
Approach Delay, s/veh		50.6			48.8			28.9			36.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	50.8	11.9	18.6	8.5	50.7	11.9	18.7
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 5.3	47.7	* 8.1	23.6	* 5.3	47.7	* 7.7	24.0
Max Q Clear Time (g_c+I1), s	4.7	34.7	7.6	12.6	4.9	40.6	7.6	7.4
Green Ext Time (p_c), s	0.0	6.2	0.0	0.8	0.0	4.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	221	194	31	25	31
Future Vol, veh/h	26	221	194	31	25	31
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	238	209	33	27	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	244	0	-	0	505	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	294	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1316	-	-	-	525	827
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1313	-	-	-	512	825
Mov Cap-2 Maneuver	-	-	-	-	512	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1313	-	-	-	648
HCM Lane V/C Ratio	0.021	-	-	-	0.093
HCM Control Delay (s)	7.8	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	201	34	19	164	56	33	128	26	63	135	82
Future Volume (veh/h)	32	201	34	19	164	56	33	128	26	63	135	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	216	37	20	176	60	35	138	28	68	145	88
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	71	453	378	45	303	103	73	290	245	122	342	287
Arrive On Green	0.04	0.24	0.24	0.03	0.23	0.23	0.04	0.16	0.16	0.07	0.18	0.18
Sat Flow, veh/h	1767	1856	1550	1767	1323	451	1767	1856	1567	1767	1856	1555
Grp Volume(v), veh/h	34	216	37	20	0	236	35	138	28	68	145	88
Grp Sat Flow(s),veh/h/ln	1767	1856	1550	1767	0	1774	1767	1856	1567	1767	1856	1555
Q Serve(g_s), s	0.7	3.5	0.6	0.4	0.0	4.1	0.7	2.4	0.5	1.3	2.4	1.7
Cycle Q Clear(g_c), s	0.7	3.5	0.6	0.4	0.0	4.1	0.7	2.4	0.5	1.3	2.4	1.7
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	453	378	45	0	407	73	290	245	122	342	287
V/C Ratio(X)	0.48	0.48	0.10	0.45	0.00	0.58	0.48	0.48	0.11	0.56	0.42	0.31
Avail Cap(c_a), veh/h	253	1384	1156	253	0	1323	253	1363	1151	294	1405	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	11.3	10.2	16.7	0.0	11.9	16.3	13.4	12.6	15.7	12.6	12.3
Incr Delay (d2), s/veh	4.9	0.8	0.1	6.9	0.0	1.3	4.8	1.2	0.2	3.9	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.2	0.2	0.0	1.3	0.3	0.9	0.2	0.6	0.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	12.0	10.3	23.6	0.0	13.3	21.2	14.6	12.8	19.6	13.4	12.9
LnGrp LOS	C	B	B	C	A	B	C	B	B	B	B	B
Approach Vol, veh/h		287			256			201			301	
Approach Delay, s/veh		12.9			14.1			15.5			14.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	10.1	5.1	13.1	5.6	11.0	5.6	12.6
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5.8	25.6	* 5	26.0	* 5	26.4	* 5	26.0
Max Q Clear Time (g_c+I1), s	3.3	4.4	2.4	5.5	2.7	4.4	2.7	6.1
Green Ext Time (p_c), s	0.0	0.7	0.0	1.2	0.0	1.0	0.0	1.2

Intersection Summary		
HCM 6th Ctrl Delay		14.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	102	708	152	70	852
Future Vol, veh/h	115	102	708	152	70	852
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	116	103	715	154	71	861

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1795	792	0	0	869	0
Stage 1	792	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	~ 86	383	-	-	759	-
Stage 1	439	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 78	383	-	-	759	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	316	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	64.2	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	260	759	-
HCM Lane V/C Ratio	-	-	0.843	0.093	-
HCM Control Delay (s)	-	-	64.2	10.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	6.9	0.3	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	199	16	43	166	17	26	3	11	15	13	9
Future Vol, veh/h	9	199	16	43	166	17	26	3	11	15	13	9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	205	16	44	171	18	27	3	11	15	13	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9.1	8.3	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	4%	19%	41%
Vol Thru, %	7%	89%	73%	35%
Vol Right, %	28%	7%	8%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	224	226	37
LT Vol	26	9	43	15
Through Vol	3	199	166	13
RT Vol	11	16	17	9
Lane Flow Rate	41	231	233	38
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.28	0.284	0.053
Departure Headway (Hd)	4.996	4.361	4.386	4.97
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	717	824	820	720
Service Time	3.028	2.381	2.405	3.002
HCM Lane V/C Ratio	0.057	0.28	0.284	0.053
HCM Control Delay	8.3	9.1	9.1	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.1	1.2	0.2

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	190	14	26	166	45	34	126	35	42	123	26
Future Vol, veh/h	21	190	14	26	166	45	34	126	35	42	123	26
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	202	15	28	177	48	36	134	37	45	131	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	217	0	0	591	538	210	599	521	204
Stage 1	-	-	-	-	-	-	254	254	-	260	260	-
Stage 2	-	-	-	-	-	-	337	284	-	339	261	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1334	-	-	1347	-	-	417	448	828	412	458	834
Stage 1	-	-	-	-	-	-	748	695	-	743	691	-
Stage 2	-	-	-	-	-	-	675	675	-	673	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1330	-	-	1347	-	-	300	428	828	288	437	832
Mov Cap-2 Maneuver	-	-	-	-	-	-	300	428	-	288	437	-
Stage 1	-	-	-	-	-	-	734	682	-	727	672	-
Stage 2	-	-	-	-	-	-	513	657	-	507	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.8	20.7	21.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	433	1330	-	-	1347	-	-	417
HCM Lane V/C Ratio	0.479	0.017	-	-	0.021	-	-	0.487
HCM Control Delay (s)	20.7	7.8	0	-	7.7	0	-	21.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1222	0	4	1134	34	9	6	3	109	3	109
Future Volume (vph)	38	1222	0	4	1134	34	9	6	3	109	3	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1641	3282		1641	3267			1643			1573	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (perm)	1641	3282		1641	3267			1643			1573	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	1286	0	4	1194	36	9	6	3	115	3	115
RTOR Reduction (vph)	0	0	0	0	2	0	0	3	0	0	29	0
Lane Group Flow (vph)	40	1286	0	4	1228	0	0	15	0	0	204	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.7	44.9		0.7	42.9			5.3			15.9	
Effective Green, g (s)	2.7	44.9		0.7	42.9			5.3			15.9	
Actuated g/C Ratio	0.03	0.52		0.01	0.49			0.06			0.18	
Clearance Time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5		3.3	3.5			3.5			3.5	
Lane Grp Cap (vph)	51	1697		13	1614			100			288	
v/s Ratio Prot	c0.02	c0.39		0.00	0.38			c0.01			c0.13	
v/s Ratio Perm												
v/c Ratio	0.78	0.76		0.31	0.76			0.15			0.71	
Uniform Delay, d1	41.8	16.6		42.8	17.8			38.6			33.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	54.6	2.1		14.4	2.2			0.8			8.1	
Delay (s)	96.3	18.7		57.2	20.0			39.5			41.3	
Level of Service	F	B		E	C			D			D	
Approach Delay (s)		21.0			20.2			39.5			41.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	218	143	167	268	167	83	618	59	166	838	118
Future Volume (veh/h)	141	218	143	167	268	167	83	618	59	166	838	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	162	251	164	192	308	0	95	710	68	191	963	136
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	164	372	314	186	387		112	1047	100	186	1085	153
Arrive On Green	0.09	0.20	0.20	0.11	0.21	0.00	0.06	0.32	0.32	0.11	0.35	0.35
Sat Flow, veh/h	1753	1841	1551	1753	1841	1560	1753	3225	309	1753	3075	434
Grp Volume(v), veh/h	162	251	164	192	308	0	95	385	393	191	547	552
Grp Sat Flow(s),veh/h/ln	1753	1841	1551	1753	1841	1560	1753	1749	1785	1753	1749	1760
Q Serve(g_s), s	7.2	9.8	5.5	8.3	12.4	0.0	4.2	14.9	14.9	8.3	23.0	23.0
Cycle Q Clear(g_c), s	7.2	9.8	5.5	8.3	12.4	0.0	4.2	14.9	14.9	8.3	23.0	23.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.25
Lane Grp Cap(c), veh/h	164	372	314	186	387		112	568	580	186	617	621
V/C Ratio(X)	0.99	0.67	0.52	1.03	0.80		0.85	0.68	0.68	1.02	0.89	0.89
Avail Cap(c_a), veh/h	164	543	457	186	566		112	568	580	186	637	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	28.7	15.4	34.9	29.2	0.0	36.1	22.8	22.8	34.9	23.8	23.8
Incr Delay (d2), s/veh	66.4	2.2	1.4	73.8	5.1	0.0	41.6	3.7	3.7	72.4	14.5	14.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	4.4	2.6	7.2	5.7	0.0	3.0	6.3	6.4	7.1	11.2	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.8	31.0	16.8	108.7	34.3	0.0	77.7	26.5	26.5	107.2	38.3	38.3
LnGrp LOS	F	C	B	F	C		E	C	C	F	D	D
Approach Vol, veh/h		577			500			873			1290	
Approach Delay, s/veh		46.8			62.9			32.1			48.5	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	31.1	13.0	20.9	10.8	33.3	12.4	21.5
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	5.8	* 5.8	5.1	* 5.1
Max Green Setting (Gmax), s	* 8.3	25.1	* 8.3	23.0	5.0	* 28	7.3	* 24
Max Q Clear Time (g_c+I1), s	10.3	16.9	10.3	11.8	6.2	25.0	9.2	14.4
Green Ext Time (p_c), s	0.0	4.1	0.0	1.5	0.0	2.5	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	440	502	136	98	81
Future Volume (veh/h)	53	440	502	136	98	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	512	584	158	114	94
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	110	1119	806	671	151	124
Arrive On Green	0.06	0.60	0.43	0.43	0.16	0.16
Sat Flow, veh/h	1767	1856	1856	1545	913	753
Grp Volume(v), veh/h	62	512	584	158	209	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1545	1674	0
Q Serve(g_s), s	1.4	6.0	10.3	2.6	4.7	0.0
Cycle Q Clear(g_c), s	1.4	6.0	10.3	2.6	4.7	0.0
Prop In Lane	1.00			1.00	0.55	0.45
Lane Grp Cap(c), veh/h	110	1119	806	671	276	0
V/C Ratio(X)	0.56	0.46	0.72	0.24	0.76	0.00
Avail Cap(c_a), veh/h	223	1817	1386	1154	930	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.0	4.3	9.2	7.1	15.8	0.0
Incr Delay (d2), s/veh	4.4	0.3	1.3	0.2	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.0	2.9	0.6	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	4.6	10.5	7.2	20.0	0.0
LnGrp LOS	C	A	B	A	C	A
Approach Vol, veh/h		574	742		209	
Approach Delay, s/veh		6.5	9.8		20.0	
Approach LOS		A	A		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				28.5		11.1	6.7	21.8
Change Period (Y+Rc), s				4.6		4.6	* 4.2	4.6
Max Green Setting (Gmax), s				38.8		22.0	* 5	29.6
Max Q Clear Time (g_c+I1), s				8.0		6.7	3.4	12.3
Green Ext Time (p_c), s				3.4		0.5	0.0	4.0

Intersection Summary		
HCM 6th Ctrl Delay		10.0
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	125	205	597	157	245	907
Future Volume (veh/h)	125	205	597	157	245	907
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	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	136	223	649	171	266	986
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	161	264	826	217	319	1970
Arrive On Green	0.26	0.26	0.30	0.30	0.18	0.56
Sat Flow, veh/h	615	1009	2831	721	1753	3589
Grp Volume(v), veh/h	360	0	414	406	266	986
Grp Sat Flow(s),veh/h/ln	1628	0	1749	1711	1753	1749
Q Serve(g_s), s	11.0	0.0	11.4	11.4	7.7	9.0
Cycle Q Clear(g_c), s	11.0	0.0	11.4	11.4	7.7	9.0
Prop In Lane	0.38	0.62		0.42	1.00	
Lane Grp Cap(c), veh/h	426	0	527	516	319	1970
V/C Ratio(X)	0.84	0.00	0.79	0.79	0.83	0.50
Avail Cap(c_a), veh/h	681	0	635	621	350	2246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	16.8	16.8	20.8	7.0
Incr Delay (d2), s/veh	5.5	0.0	5.4	5.6	14.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	4.6	4.6	4.1	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.9	0.0	22.2	22.4	35.6	7.2
LnGrp LOS	C	A	C	C	D	A
Approach Vol, veh/h	360		820			1252
Approach Delay, s/veh	23.9		22.3			13.2
Approach LOS	C		C			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	13.8	20.5	34.2	18.4
Change Period (Y+Rc), s	* 4.2	4.6	4.6	4.6
Max Green Setting (Gmax), s	* 11	19.1	33.8	22.0
Max Q Clear Time (g_c+I1), s	9.7	13.4	11.0	13.0
Green Ext Time (p_c), s	0.1	2.4	7.3	0.8

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	288	13	46	352	154	33	109	41	57	187	73
Future Volume (veh/h)	88	288	13	46	352	154	33	109	41	57	187	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	101	331	15	53	405	177	38	125	47	66	215	84
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	129	733	33	87	473	207	69	214	80	149	268	105
Arrive On Green	0.07	0.42	0.42	0.05	0.39	0.39	0.04	0.17	0.17	0.08	0.21	0.21
Sat Flow, veh/h	1767	1757	80	1767	1205	526	1767	1285	483	1767	1270	496
Grp Volume(v), veh/h	101	0	346	53	0	582	38	0	172	66	0	299
Grp Sat Flow(s),veh/h/ln	1767	0	1837	1767	0	1731	1767	0	1769	1767	0	1766
Q Serve(g_s), s	3.3	0.0	8.0	1.7	0.0	18.2	1.3	0.0	5.3	2.1	0.0	9.5
Cycle Q Clear(g_c), s	3.3	0.0	8.0	1.7	0.0	18.2	1.3	0.0	5.3	2.1	0.0	9.5
Prop In Lane	1.00		0.04	1.00		0.30	1.00		0.27	1.00		0.28
Lane Grp Cap(c), veh/h	129	0	766	87	0	680	69	0	294	149	0	373
V/C Ratio(X)	0.78	0.00	0.45	0.61	0.00	0.86	0.55	0.00	0.58	0.44	0.00	0.80
Avail Cap(c_a), veh/h	203	0	998	203	0	940	149	0	567	155	0	572
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	12.4	27.6	0.0	16.5	28.0	0.0	22.8	25.8	0.0	22.2
Incr Delay (d2), s/veh	9.7	0.0	0.4	6.8	0.0	5.8	6.6	0.0	1.8	2.1	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.9	0.8	0.0	7.1	0.6	0.0	2.2	0.9	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	12.8	34.4	0.0	22.3	34.6	0.0	24.7	27.9	0.0	26.9
LnGrp LOS	D	A	B	C	A	C	C	A	C	C	A	C
Approach Vol, veh/h		447			635			210			365	
Approach Delay, s/veh		18.2			23.3			26.5			27.1	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	14.1	7.1	28.9	6.5	16.7	8.5	27.5				
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2				
Max Green Setting (Gmax), s	* 5.2	* 19	* 6.8	* 32	* 5	* 19	* 6.8	* 32				
Max Q Clear Time (g_c+I1), s	4.1	7.3	3.7	10.0	3.3	11.5	5.3	20.2				
Green Ext Time (p_c), s	0.0	0.6	0.0	2.0	0.0	1.0	0.0	3.1				
Intersection Summary												
HCM 6th Ctrl Delay			23.1									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	107	140	62	107	115	82	55	666	63	51	755	48
Future Volume (veh/h)	107	140	62	107	115	82	55	666	63	51	755	48
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	111	146	65	111	120	0	57	694	66	53	786	50
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	142	279	236	142	266		91	1048	100	129	1156	74
Arrive On Green	0.08	0.15	0.15	0.08	0.15	0.00	0.05	0.33	0.33	0.07	0.35	0.35
Sat Flow, veh/h	1739	1826	1544	1739	1826	1547	1739	3202	304	1739	3312	211
Grp Volume(v), veh/h	111	146	65	111	120	0	57	376	384	53	412	424
Grp Sat Flow(s),veh/h/ln	1739	1826	1544	1739	1826	1547	1739	1735	1771	1739	1735	1788
Q Serve(g_s), s	3.5	4.1	1.5	3.5	3.4	0.0	1.8	10.4	10.4	1.6	11.3	11.3
Cycle Q Clear(g_c), s	3.5	4.1	1.5	3.5	3.4	0.0	1.8	10.4	10.4	1.6	11.3	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.12
Lane Grp Cap(c), veh/h	142	279	236	142	266		91	568	580	129	605	624
V/C Ratio(X)	0.78	0.52	0.28	0.78	0.45		0.62	0.66	0.66	0.41	0.68	0.68
Avail Cap(c_a), veh/h	268	786	664	268	786		165	840	857	159	833	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	21.8	11.2	25.1	21.8	0.0	25.9	16.1	16.1	24.7	15.5	15.5
Incr Delay (d2), s/veh	8.9	1.6	0.7	8.9	1.3	0.0	6.8	2.1	2.1	2.1	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.7	0.7	1.7	1.4	0.0	0.9	3.8	3.9	0.7	4.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	23.4	11.8	34.0	23.0	0.0	32.7	18.2	18.2	26.8	17.6	17.6
LnGrp LOS	C	C	B	C	C		C	B	B	C	B	B
Approach Vol, veh/h		322			231			817			889	
Approach Delay, s/veh		24.7			28.3			19.2			18.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	24.1	9.3	13.6	7.6	25.3	9.7	13.2
Change Period (Y+Rc), s	4.7	* 5.8	* 4.7	5.1	4.7	* 5.8	5.1	* 5.1
Max Green Setting (Gmax), s	5.1	* 27	* 8.6	24.0	5.3	* 27	8.6	* 24
Max Q Clear Time (g_c+I1), s	3.6	12.4	5.5	6.1	3.8	13.3	5.5	5.4
Green Ext Time (p_c), s	0.0	5.9	0.1	0.9	0.0	6.2	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	221	194	31	25	31
Future Volume (veh/h)	26	221	194	31	25	31
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	238	209	33	27	33
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	63	915	479	404	52	64
Arrive On Green	0.04	0.49	0.26	0.26	0.07	0.07
Sat Flow, veh/h	1767	1856	1856	1566	734	897
Grp Volume(v), veh/h	28	238	209	33	61	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1856	1566	1657	0
Q Serve(g_s), s	0.3	1.6	2.0	0.3	0.7	0.0
Cycle Q Clear(g_c), s	0.3	1.6	2.0	0.3	0.7	0.0
Prop In Lane	1.00			1.00	0.44	0.54
Lane Grp Cap(c), veh/h	63	915	479	404	118	0
V/C Ratio(X)	0.44	0.26	0.44	0.08	0.52	0.00
Avail Cap(c_a), veh/h	820	4078	2848	2404	1916	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.0	3.1	6.5	5.9	9.5	0.0
Incr Delay (d2), s/veh	4.8	0.1	0.6	0.1	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	0.1	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.7	3.3	7.2	6.0	12.9	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h		266	242		61	
Approach Delay, s/veh		4.5	7.0		12.9	
Approach LOS		A	A		B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	15.0	6.1	5.0	10.1
Change Period (Y+Rc), s	4.6	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	46.4	24.4	* 9.8	32.4
Max Q Clear Time (g_c+I1), s	3.6	2.7	2.3	4.0
Green Ext Time (p_c), s	1.4	0.1	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	115	102	708	152	70	852
Future Volume (veh/h)	115	102	708	152	70	852
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	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	116	103	715	154	71	861
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	153	135	1060	228	122	1944
Arrive On Green	0.18	0.18	0.38	0.38	0.07	0.56
Sat Flow, veh/h	860	763	2907	606	1725	3532
Grp Volume(v), veh/h	220	0	437	432	71	861
Grp Sat Flow(s),veh/h/ln	1631	0	1721	1702	1725	1721
Q Serve(g_s), s	4.6	0.0	7.6	7.6	1.4	5.2
Cycle Q Clear(g_c), s	4.6	0.0	7.6	7.6	1.4	5.2
Prop In Lane	0.53	0.47		0.36	1.00	
Lane Grp Cap(c), veh/h	289	0	648	641	122	1944
V/C Ratio(X)	0.76	0.00	0.67	0.67	0.58	0.44
Avail Cap(c_a), veh/h	1005	0	944	934	242	2775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	9.3	9.3	16.1	4.5
Incr Delay (d2), s/veh	4.1	0.0	1.2	1.2	4.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.0	2.0	0.6	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.1	0.0	10.5	10.6	20.4	4.7
LnGrp LOS	B	A	B	B	C	A
Approach Vol, veh/h	220		869			932
Approach Delay, s/veh	18.1		10.5			5.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	6.7	18.0	24.8	10.9
Change Period (Y+Rc), s	* 4.2	4.6	4.6	4.6
Max Green Setting (Gmax), s	* 5	19.6	28.8	22.0
Max Q Clear Time (g_c+I1), s	3.4	9.6	7.2	6.6
Green Ext Time (p_c), s	0.0	3.9	6.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	190	14	26	166	45	34	126	35	42	123	26
Future Volume (veh/h)	21	190	14	26	166	45	34	126	35	42	123	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	202	15	28	177	48	36	134	37	45	131	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	49	352	26	60	299	81	74	224	62	225	364	78
Arrive On Green	0.03	0.21	0.21	0.03	0.21	0.21	0.04	0.16	0.16	0.13	0.25	0.25
Sat Flow, veh/h	1767	1705	127	1767	1403	381	1767	1400	386	1767	1482	317
Grp Volume(v), veh/h	22	0	217	28	0	225	36	0	171	45	0	159
Grp Sat Flow(s),veh/h/ln	1767	0	1832	1767	0	1784	1767	0	1786	1767	0	1799
Q Serve(g_s), s	0.4	0.0	3.8	0.6	0.0	4.0	0.7	0.0	3.2	0.8	0.0	2.6
Cycle Q Clear(g_c), s	0.4	0.0	3.8	0.6	0.0	4.0	0.7	0.0	3.2	0.8	0.0	2.6
Prop In Lane	1.00		0.07	1.00		0.21	1.00		0.22	1.00		0.18
Lane Grp Cap(c), veh/h	49	0	378	60	0	380	74	0	286	225	0	441
V/C Ratio(X)	0.45	0.00	0.57	0.47	0.00	0.59	0.48	0.00	0.60	0.20	0.00	0.36
Avail Cap(c_a), veh/h	248	0	1169	268	0	1158	288	0	954	303	0	976
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	12.7	16.9	0.0	12.6	16.7	0.0	13.9	13.9	0.0	11.1
Incr Delay (d2), s/veh	6.5	0.0	1.4	5.5	0.0	1.5	4.8	0.0	2.0	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.3	0.3	0.0	1.4	0.3	0.0	1.1	0.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	0.0	14.1	22.4	0.0	14.1	21.5	0.0	15.9	14.3	0.0	11.6
LnGrp LOS	C	A	B	C	A	B	C	A	B	B	A	B
Approach Vol, veh/h		239			253			207			204	
Approach Delay, s/veh		15.0			15.0			16.9			12.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	9.9	5.4	11.5	5.7	12.9	5.2	11.8
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2
Max Green Setting (Gmax), s	* 6.1	* 19	* 5.4	* 23	* 5.8	* 19	* 5	* 23
Max Q Clear Time (g_c+I1), s	2.8	5.2	2.6	5.8	2.7	4.6	2.4	6.0
Green Ext Time (p_c), s	0.0	0.7	0.0	1.0	0.0	0.6	0.0	1.1

Intersection Summary			
HCM 6th Ctrl Delay			14.8
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	286	244	121	120	559	240	104	262	266	224	353	325
Average Queue (ft)	111	115	52	108	254	72	51	115	143	118	220	207
95th Queue (ft)	215	197	96	144	467	253	87	189	221	201	314	305
Link Distance (ft)		1847			1174			1763	1763		1551	1551
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		250	55		120	160			300		
Storage Blk Time (%)	2	0		55	44			1			0	
Queuing Penalty (veh)	8	1		239	146			1			0	

Intersection: 2: B Street & Las Palmas Street

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	54	160	225	192	145
Average Queue (ft)	35	65	107	34	77
95th Queue (ft)	60	124	184	96	126
Link Distance (ft)		572	424		1330
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150			50	
Storage Blk Time (%)		0	18	2	
Queuing Penalty (veh)		0	24	10	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	239	433	240	190	380	176	198	43	215	232	159
Average Queue (ft)	55	182	43	77	161	79	88	16	117	118	61
95th Queue (ft)	158	320	134	174	280	151	156	40	193	197	108
Link Distance (ft)		424			619		1733			1564	
Upstream Blk Time (%)		0									
Queuing Penalty (veh)		1									
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		9			17	1	1		3	2	0
Queuing Penalty (veh)		15			14	2	1		13	7	0

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	245	221	179	276	222	164
Average Queue (ft)	127	130	112	140	88	98
95th Queue (ft)	205	202	180	230	175	167
Link Distance (ft)	1754	1670	1670		1763	1763
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				250		
Storage Blk Time (%)				0		
Queuing Penalty (veh)				1		

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	139	244	55	140
Average Queue (ft)	89	137	30	79
95th Queue (ft)	135	215	47	121
Link Distance (ft)	1754	686	1648	232
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	162	177	73	336	71	215	96	199
Average Queue (ft)	66	81	31	177	24	71	48	105
95th Queue (ft)	129	153	67	278	56	143	91	177
Link Distance (ft)		686		2463		1575		1733
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)				3				
Queuing Penalty (veh)				1				

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (ft)	185	307	268	504	408	31	305
Average Queue (ft)	19	136	131	206	209	4	156
95th Queue (ft)	77	256	253	362	354	21	263
Link Distance (ft)		1714	1714	2486	2486	130	1648
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125						
Storage Blk Time (%)		9		10			
Queuing Penalty (veh)		2		0			

Network Summary

Network wide Queuing Penalty: 487

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	L	T	TR	L	T	TR
Maximum Queue (ft)	172	144	74	118	161	220	256	230	87	227	213
Average Queue (ft)	69	74	35	64	66	37	106	124	36	133	113
95th Queue (ft)	123	124	58	101	120	102	180	189	70	206	207
Link Distance (ft)		1847			1174		1763	1763		1551	1551
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250		250	55		160			300		
Storage Blk Time (%)				19	17		1				
Queuing Penalty (veh)				38	33		1				

Intersection: 2: B Street & Las Palmas Street

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	77	96	100	47	69
Average Queue (ft)	25	17	30	4	22
95th Queue (ft)	57	64	69	23	51
Link Distance (ft)		572	424		1330
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150			50	
Storage Blk Time (%)			2	0	
Queuing Penalty (veh)			1	0	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	46	110	69	190	215	49	116	22	76	118	79
Average Queue (ft)	15	43	11	18	62	19	48	9	40	47	34
95th Queue (ft)	40	95	35	75	127	45	95	26	67	96	64
Link Distance (ft)		424			619		1733			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)					1						
Queuing Penalty (veh)					0						

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	118	151	224	97	161	204
Average Queue (ft)	77	96	92	37	74	84
95th Queue (ft)	121	144	152	77	144	157
Link Distance (ft)	1754	1670	1670		1763	1763
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				250		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	114	98	50	31
Average Queue (ft)	42	54	26	25
95th Queue (ft)	71	78	46	44
Link Distance (ft)	1754	686	1648	232
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	72	96	51	159	72	100	72	112
Average Queue (ft)	16	49	19	54	27	50	29	52
95th Queue (ft)	47	83	50	110	56	88	59	100
Link Distance (ft)		686		2463		1575		1733
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	184	355	347	22	476	455	55	228
Average Queue (ft)	37	158	149	2	192	201	16	138
95th Queue (ft)	103	303	291	11	370	376	44	220
Link Distance (ft)		1714	1714		2486	2486	130	1648
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			185				
Storage Blk Time (%)	0	11			7			
Queuing Penalty (veh)	2	4			0			

Network Summary

Network wide Queuing Penalty: 78

Appendix I: Cumulative Year 2044 plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	225	143	175	271	171	83	626	134	197	838	118
Future Volume (veh/h)	141	225	143	175	271	171	83	626	134	197	838	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	162	259	164	201	311	0	95	720	154	226	963	136
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	179	209	132	161	348		88	681	146	185	818	116
Arrive On Green	0.10	0.20	0.20	0.09	0.19	0.00	0.05	0.46	0.46	0.11	0.52	0.52
Sat Flow, veh/h	1753	1049	664	1753	1841	1560	1753	1470	314	1753	1577	223
Grp Volume(v), veh/h	162	0	423	201	311	0	95	0	874	226	0	1099
Grp Sat Flow(s),veh/h/ln	1753	0	1713	1753	1841	1560	1753	0	1784	1753	0	1800
Q Serve(g_s), s	13.3	0.0	28.9	13.3	23.9	0.0	7.3	0.0	67.2	15.3	0.0	75.2
Cycle Q Clear(g_c), s	13.3	0.0	28.9	13.3	23.9	0.0	7.3	0.0	67.2	15.3	0.0	75.2
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.18	1.00		0.12
Lane Grp Cap(c), veh/h	179	0	341	161	348		88	0	827	185	0	933
V/C Ratio(X)	0.91	0.00	1.24	1.25	0.89		1.08	0.00	1.06	1.22	0.00	1.18
Avail Cap(c_a), veh/h	179	0	341	161	348		88	0	827	185	0	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.4	0.0	58.1	65.8	57.4	0.0	68.8	0.0	38.9	64.8	0.0	34.9
Incr Delay (d2), s/veh	41.5	0.0	130.1	153.5	24.2	0.0	118.1	0.0	47.5	138.4	0.0	91.0
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	8.0	0.0	25.0	12.9	13.6	0.0	6.2	0.0	39.4	13.9	0.0	55.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.9	0.0	188.1	219.4	81.6	0.0	186.9	0.0	86.4	203.3	0.0	125.9
LnGrp LOS	F	A	F	F	F		F	A	F	F	A	F
Approach Vol, veh/h		585			512			969			1325	
Approach Delay, s/veh		165.3			135.7			96.2			139.1	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	73.0	18.0	34.0	12.0	81.0	19.5	32.5
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 15	67.2	* 13	28.9	* 7.3	75.2	* 15	27.4
Max Q Clear Time (g_c+I1), s	17.3	69.2	15.3	30.9	9.3	77.2	15.3	25.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	130.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	31.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	441	85	40	502	136	16	3	8	98	3	81
Future Vol, veh/h	53	441	85	40	502	136	16	3	8	98	3	81
Conflicting Peds, #/hr	15	0	10	10	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	62	513	99	47	584	158	19	3	9	114	3	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	757	0	0	622	0	0	1503	1548	573	1386	1439	599
Stage 1	-	-	-	-	-	-	697	697	-	693	693	-
Stage 2	-	-	-	-	-	-	806	851	-	693	746	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	849	-	-	954	-	-	99	113	517	120	132	500
Stage 1	-	-	-	-	-	-	430	441	-	432	443	-
Stage 2	-	-	-	-	-	-	374	375	-	432	419	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	837	-	-	945	-	-	70	97	512	~ 103	113	493
Mov Cap-2 Maneuver	-	-	-	-	-	-	70	97	-	~ 103	113	-
Stage 1	-	-	-	-	-	-	394	404	-	394	415	-
Stage 2	-	-	-	-	-	-	285	351	-	389	384	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.5	58.2	240.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	98	837	-	-	945	-	-	159
HCM Lane V/C Ratio	0.32	0.074	-	-	0.049	-	-	1.331
HCM Control Delay (s)	58.2	9.6	-	-	9	-	-	240.3
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.2	0.2	-	-	0.2	-	-	12.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	403	118	81	354	72	145	193	34	170	246	193
Future Volume (veh/h)	53	403	118	81	354	72	145	193	34	170	246	193
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		0.98	1.00		0.99	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	469	137	94	412	84	169	224	40	198	286	224
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	90	572	484	120	485	99	211	415	348	243	449	363
Arrive On Green	0.05	0.31	0.31	0.07	0.33	0.33	0.12	0.22	0.22	0.14	0.24	0.24
Sat Flow, veh/h	1767	1856	1570	1767	1491	304	1767	1856	1558	1767	1856	1501
Grp Volume(v), veh/h	62	469	137	94	0	496	169	224	40	198	286	224
Grp Sat Flow(s),veh/h/ln	1767	1856	1570	1767	0	1795	1767	1856	1558	1767	1856	1501
Q Serve(g_s), s	2.3	15.7	4.4	3.5	0.0	17.3	6.2	7.2	1.4	7.3	9.3	8.9
Cycle Q Clear(g_c), s	2.3	15.7	4.4	3.5	0.0	17.3	6.2	7.2	1.4	7.3	9.3	8.9
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	572	484	120	0	584	211	415	348	243	449	363
V/C Ratio(X)	0.69	0.82	0.28	0.78	0.00	0.85	0.80	0.54	0.11	0.81	0.64	0.62
Avail Cap(c_a), veh/h	134	738	625	179	0	760	284	722	606	337	777	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	21.5	17.6	30.8	0.0	21.1	28.8	23.0	20.8	28.1	22.8	22.7
Incr Delay (d2), s/veh	8.9	5.7	0.3	12.0	0.0	7.1	11.2	1.1	0.1	10.2	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.1	1.5	1.8	0.0	7.6	3.1	3.0	0.5	3.6	3.9	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	27.2	17.9	42.8	0.0	28.2	40.0	24.1	20.9	38.3	24.3	24.4
LnGrp LOS	D	C	B	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		668			590			433			708	
Approach Delay, s/veh		26.5			30.6			30.0			28.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	19.6	8.8	25.3	12.2	20.8	7.6	26.4
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 13	26.1	* 6.8	26.7	* 11	28.1	* 5.1	28.4
Max Q Clear Time (g_c+I1), s	9.3	9.2	5.5	17.7	8.2	11.3	4.3	19.3
Green Ext Time (p_c), s	0.2	1.2	0.0	2.3	0.1	2.2	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑	↑	
Traffic Vol, veh/h	0	101	0	372	445	0
Future Vol, veh/h	0	101	0	372	445	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	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	117	0	433	517	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	517	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	556	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	556	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	556	-
HCM Lane V/C Ratio	-	0.211	-
HCM Control Delay (s)	-	13.2	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.8	-

Intersection	
Int Delay, s/veh	86.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	214	668	157	245	915
Future Vol, veh/h	135	214	668	157	245	915
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	147	233	726	171	266	995

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2339	812	0	0	897	0
Stage 1	812	-	-	-	-	-
Stage 2	1527	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	~ 40	376	-	-	749	-
Stage 1	433	-	-	-	-	-
Stage 2	196	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 26	376	-	-	749	-
Mov Cap-2 Maneuver	~ 97	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	~ 126	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 569.9	0	2.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	178	749	-
HCM Lane V/C Ratio	-	-	2.131	0.356	-
HCM Control Delay (s)	-	-	$ 569.9	12.4	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	29.9	1.6	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	38.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	125	206	12	60	254	176	9	40	16	92	67	136
Future Vol, veh/h	125	206	12	60	254	176	9	40	16	92	67	136
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	145	240	14	70	295	205	10	47	19	107	78	158
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	28.1	57.5	13	23
HCM LOS	D	F	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	36%	12%	31%
Vol Thru, %	62%	60%	52%	23%
Vol Right, %	25%	3%	36%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	343	490	295
LT Vol	9	125	60	92
Through Vol	40	206	254	67
RT Vol	16	12	176	136
Lane Flow Rate	76	399	570	343
Geometry Grp	1	1	1	1
Degree of Util (X)	0.172	0.756	0.979	0.667
Departure Headway (Hd)	8.204	6.828	6.311	7
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	438	530	581	518
Service Time	6.251	4.853	4.311	5.017
HCM Lane V/C Ratio	0.174	0.753	0.981	0.662
HCM Control Delay	13	28.1	57.5	23
HCM Lane LOS	B	D	F	C
HCM 95th-tile Q	0.6	6.6	13.7	4.9

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	288	13	46	352	162	33	119	41	74	242	99
Future Vol, veh/h	88	288	13	46	352	162	33	119	41	74	242	99
Conflicting Peds, #/hr	36	0	0	0	0	36	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	101	331	15	53	405	186	38	137	47	85	278	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	627	0	0	346	0	0	1341	1274	339	1273	1188	534
Stage 1	-	-	-	-	-	-	541	541	-	640	640	-
Stage 2	-	-	-	-	-	-	800	733	-	633	548	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	950	-	-	1207	-	-	129	166	701	144	~ 187	544
Stage 1	-	-	-	-	-	-	523	519	-	462	468	-
Stage 2	-	-	-	-	-	-	377	425	-	466	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	917	-	-	1207	-	-	-	~ 129	701	-	~ 145	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 129	-	-	~ 145	-
Stage 1	-	-	-	-	-	-	451	448	-	385	422	-
Stage 2	-	-	-	-	-	-	94	383	-	261	444	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.7		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	917	-	-	1207	-	-	-
HCM Lane V/C Ratio	-	0.11	-	-	0.044	-	-	-
HCM Control Delay (s)	-	9.4	0	-	8.1	0	-	-
HCM Lane LOS	-	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	871	3	0	1385	18	3	0	0	88	0	222
Future Volume (vph)	27	871	3	0	1385	18	3	0	0	88	0	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1			5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			1.00			1.00			0.90	
Flt Protected	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (prot)	1641	3280			3275			1641			1539	
Flt Permitted	0.95	1.00			1.00			0.95			0.99	
Satd. Flow (perm)	1641	3280			3275			1641			1539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	29	937	3	0	1489	19	3	0	0	95	0	239
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	71	0
Lane Group Flow (vph)	29	940	0	0	1508	0	0	3	0	0	263	0
Confl. Peds. (#/hr)			1			2						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.8	71.7			64.2			9.4			25.8	
Effective Green, g (s)	2.8	71.7			64.2			9.4			25.8	
Actuated g/C Ratio	0.02	0.59			0.53			0.08			0.21	
Clearance Time (s)	4.7	5.1			5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)	37	1924			1720			126			324	
v/s Ratio Prot	0.02	c0.29			c0.46			c0.00			c0.17	
v/s Ratio Perm												
v/c Ratio	0.78	0.49			0.88			0.02			0.81	
Uniform Delay, d1	59.4	14.6			25.5			52.2			45.9	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	68.7	0.2			5.5			0.1			14.6	
Delay (s)	128.1	14.9			31.0			52.2			60.5	
Level of Service	F	B			C			D			E	
Approach Delay (s)		18.2			31.0			52.2			60.5	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	150	62	123	120	91	55	681	177	96	755	48
Future Volume (veh/h)	107	150	62	123	120	91	55	681	177	96	755	48
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	111	156	65	128	125	0	57	709	184	100	786	50
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	135	180	75	151	286		73	733	190	122	939	60
Arrive On Green	0.08	0.15	0.15	0.09	0.16	0.00	0.04	0.52	0.52	0.07	0.55	0.55
Sat Flow, veh/h	1739	1223	509	1739	1826	1547	1739	1398	363	1739	1698	108
Grp Volume(v), veh/h	111	0	221	128	125	0	57	0	893	100	0	836
Grp Sat Flow(s),veh/h/ln	1739	0	1732	1739	1826	1547	1739	0	1761	1739	0	1806
Q Serve(g_s), s	7.5	0.0	14.8	8.6	7.3	0.0	3.8	0.0	58.0	6.7	0.0	45.7
Cycle Q Clear(g_c), s	7.5	0.0	14.8	8.6	7.3	0.0	3.8	0.0	58.0	6.7	0.0	45.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.21	1.00		0.06
Lane Grp Cap(c), veh/h	135	0	255	151	286		73	0	923	122	0	998
V/C Ratio(X)	0.82	0.00	0.87	0.85	0.44		0.78	0.00	0.97	0.82	0.00	0.84
Avail Cap(c_a), veh/h	136	0	338	151	371		79	0	936	122	0	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.8	0.0	49.4	53.3	45.2	0.0	56.3	0.0	27.2	54.4	0.0	22.1
Incr Delay (d2), s/veh	31.2	0.0	16.5	33.7	1.1	0.0	36.6	0.0	21.8	34.3	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	7.5	5.1	3.4	0.0	2.4	0.0	28.3	4.1	0.0	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	0.0	65.9	87.0	46.3	0.0	92.9	0.0	49.0	88.6	0.0	28.7
LnGrp LOS	F	A	E	F	D		F	A	D	F	A	C
Approach Vol, veh/h		332			253			950			936	
Approach Delay, s/veh		72.3			66.9			51.7			35.1	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	67.9	15.0	22.6	9.7	71.3	13.9	23.7
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 8.3	63.0	* 10	23.1	* 5.4	65.9	* 9.3	24.1
Max Q Clear Time (g_c+I1), s	8.7	60.0	10.6	16.8	5.8	47.7	9.5	9.3
Green Ext Time (p_c), s	0.0	2.1	0.0	0.6	0.0	8.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	49.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	225	170	80	194	31	32	6	16	25	6	31
Future Vol, veh/h	26	225	170	80	194	31	32	6	16	25	6	31
Conflicting Peds, #/hr	2	0	5	5	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	120	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	28	242	183	86	209	33	34	6	17	27	6	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	430	0	0	812	811	339	784	869	211
Stage 1	-	-	-	-	-	-	395	395	-	383	383	-
Stage 2	-	-	-	-	-	-	417	416	-	401	486	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1316	-	-	1124	-	-	296	312	701	310	289	827
Stage 1	-	-	-	-	-	-	628	603	-	638	610	-
Stage 2	-	-	-	-	-	-	611	590	-	624	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1313	-	-	1119	-	-	257	280	698	275	259	825
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	280	-	275	259	-
Stage 1	-	-	-	-	-	-	612	587	-	623	562	-
Stage 2	-	-	-	-	-	-	535	543	-	589	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.2	18.7	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	320	1313	-	-	1119	-	-	409
HCM Lane V/C Ratio	0.181	0.021	-	-	0.077	-	-	0.163
HCM Control Delay (s)	18.7	7.8	-	-	8.5	-	-	15.5
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.2	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	210	36	19	178	56	72	128	26	63	135	109
Future Volume (veh/h)	41	210	36	19	178	56	72	128	26	63	135	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	44	226	39	20	191	60	77	138	28	68	145	117
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	87	477	399	44	316	99	131	322	272	120	311	260
Arrive On Green	0.05	0.26	0.26	0.03	0.23	0.23	0.07	0.17	0.17	0.07	0.17	0.17
Sat Flow, veh/h	1767	1856	1551	1767	1354	425	1767	1856	1568	1767	1856	1554
Grp Volume(v), veh/h	44	226	39	20	0	251	77	138	28	68	145	117
Grp Sat Flow(s),veh/h/ln	1767	1856	1551	1767	0	1779	1767	1856	1568	1767	1856	1554
Q Serve(g_s), s	0.9	3.8	0.7	0.4	0.0	4.7	1.6	2.5	0.6	1.4	2.6	2.5
Cycle Q Clear(g_c), s	0.9	3.8	0.7	0.4	0.0	4.7	1.6	2.5	0.6	1.4	2.6	2.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	477	399	44	0	415	131	322	272	120	311	260
V/C Ratio(X)	0.51	0.47	0.10	0.45	0.00	0.61	0.59	0.43	0.10	0.57	0.47	0.45
Avail Cap(c_a), veh/h	239	1305	1091	239	0	1251	239	1285	1086	277	1325	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	11.6	10.5	17.8	0.0	12.7	16.6	13.6	12.9	16.7	13.9	13.8
Incr Delay (d2), s/veh	4.5	0.7	0.1	7.0	0.0	1.4	4.2	0.9	0.2	4.1	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.2	0.2	0.0	1.6	0.7	0.9	0.2	0.6	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	12.3	10.6	24.8	0.0	14.1	20.8	14.5	13.0	20.8	15.0	15.1
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		309			271			243			330	
Approach Delay, s/veh		13.4			14.9			16.3			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	11.0	5.1	14.1	6.9	10.8	6.0	13.2
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5.8	25.6	* 5	26.0	* 5	26.4	* 5	26.0
Max Q Clear Time (g_c+I1), s	3.4	4.5	2.4	5.8	3.6	4.6	2.9	6.7
Green Ext Time (p_c), s	0.0	0.7	0.0	1.3	0.0	1.1	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑	↑	
Traffic Vol, veh/h	0	202	0	226	190	0
Future Vol, veh/h	0	202	0	226	190	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	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	217	0	243	204	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	204	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-	-
Pot Cap-1 Maneuver	0	834	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	834	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	834	-
HCM Lane V/C Ratio	-	0.26	-
HCM Control Delay (s)	-	10.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1	-

Intersection	
Int Delay, s/veh	15.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	134	120	812	152	70	868
Future Vol, veh/h	134	120	812	152	70	868
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	135	121	820	154	71	877

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1916	897	0	0	974	0
Stage 1	897	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	~ 72	333	-	-	692	-
Stage 1	392	-	-	-	-	-
Stage 2	343	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 65	333	-	-	692	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	308	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	128.4		0		0.8	
HCM LOS	F					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	236	692	-
HCM Lane V/C Ratio	-	-	1.087	0.102	-
HCM Control Delay (s)	-	-	128.4	10.8	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	11.2	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	9	199	16	56	205	17	26	3	11	15	13	9
Future Vol, veh/h	9	199	16	56	205	17	26	3	11	15	13	9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	205	16	58	211	18	27	3	11	15	13	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	9.8	8.5	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	4%	20%	41%
Vol Thru, %	7%	89%	74%	35%
Vol Right, %	28%	7%	6%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	224	278	37
LT Vol	26	9	56	15
Through Vol	3	199	205	13
RT Vol	11	16	17	9
Lane Flow Rate	41	231	287	38
Geometry Grp	1	1	1	1
Degree of Util (X)	0.059	0.284	0.35	0.054
Departure Headway (Hd)	5.116	4.422	4.402	5.091
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	699	813	817	702
Service Time	3.155	2.445	2.425	3.131
HCM Lane V/C Ratio	0.059	0.284	0.351	0.054
HCM Control Delay	8.5	9.2	9.8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.2	1.6	0.2

Intersection	
Int Delay, s/veh	30.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	21	190	14	26	166	60	34	145	35	74	233	78
Future Vol, veh/h	21	190	14	26	166	60	34	145	35	74	233	78
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	202	15	28	177	64	36	154	37	79	248	83

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	217	0	0	685	554	210	617	529	212
Stage 1	-	-	-	-	-	-	254	254	-	268	268	-
Stage 2	-	-	-	-	-	-	431	300	-	349	261	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1316	-	-	1347	-	-	361	439	828	401	454	826
Stage 1	-	-	-	-	-	-	748	695	-	735	685	-
Stage 2	-	-	-	-	-	-	601	664	-	665	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1312	-	-	1347	-	-	173	419	828	264	434	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	419	-	264	434	-
Stage 1	-	-	-	-	-	-	734	682	-	719	667	-
Stage 2	-	-	-	-	-	-	331	646	-	482	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.8	29.7	68.3
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	366	1312	-	-	1347	-	-	422
HCM Lane V/C Ratio	0.622	0.017	-	-	0.021	-	-	0.971
HCM Control Delay (s)	29.7	7.8	0	-	7.7	0	-	68.3
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4	0.1	-	-	0.1	-	-	11.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1226	0	4	1198	34	9	6	3	109	3	122
Future Volume (vph)	38	1226	0	4	1198	34	9	6	3	109	3	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1641	3282		1641	3268			1643			1569	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (perm)	1641	3282		1641	3268			1643			1569	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	1291	0	4	1261	36	9	6	3	115	3	128
RTOR Reduction (vph)	0	0	0	0	1	0	0	3	0	0	32	0
Lane Group Flow (vph)	40	1291	0	4	1296	0	0	15	0	0	214	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	2.8	48.9		0.7	46.8			5.6			16.1	
Effective Green, g (s)	2.8	48.9		0.7	46.8			5.6			16.1	
Actuated g/C Ratio	0.03	0.54		0.01	0.51			0.06			0.18	
Clearance Time (s)	4.7	5.1		4.7	5.1			5.1			5.1	
Vehicle Extension (s)	3.3	3.5		3.3	3.5			3.5			3.5	
Lane Grp Cap (vph)	50	1757		12	1675			100			276	
v/s Ratio Prot	c0.02	0.39		0.00	c0.40			c0.01			c0.14	
v/s Ratio Perm												
v/c Ratio	0.80	0.73		0.33	0.77			0.15			0.77	
Uniform Delay, d1	44.0	16.2		45.1	18.0			40.6			35.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	59.8	1.7		17.3	2.4			0.8			13.1	
Delay (s)	103.8	17.9		62.4	20.3			41.4			49.0	
Level of Service	F	B		E	C			D			D	
Approach Delay (s)		20.5			20.5			41.4			49.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	225	143	175	271	171	83	626	134	197	838	118
Future Volume (veh/h)	141	225	143	175	271	171	83	626	134	197	838	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	162	259	164	201	311	0	95	720	154	226	963	136
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	146	354	298	192	412		116	867	185	215	1105	156
Arrive On Green	0.08	0.19	0.19	0.11	0.22	0.00	0.07	0.30	0.30	0.12	0.36	0.36
Sat Flow, veh/h	1753	1841	1550	1753	1841	1560	1753	2866	613	1753	3075	434
Grp Volume(v), veh/h	162	259	164	201	311	0	95	439	435	226	547	552
Grp Sat Flow(s),veh/h/ln	1753	1841	1550	1753	1841	1560	1753	1749	1730	1753	1749	1760
Q Serve(g_s), s	6.3	10.0	7.2	8.3	12.0	0.0	4.1	17.7	17.7	9.3	22.1	22.2
Cycle Q Clear(g_c), s	6.3	10.0	7.2	8.3	12.0	0.0	4.1	17.7	17.7	9.3	22.1	22.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		0.25
Lane Grp Cap(c), veh/h	146	354	298	192	412		116	529	524	215	628	633
V/C Ratio(X)	1.11	0.73	0.55	1.05	0.75		0.82	0.83	0.83	1.05	0.87	0.87
Avail Cap(c_a), veh/h	146	558	470	192	607		116	579	573	215	655	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	28.8	27.7	33.8	27.5	0.0	35.0	24.6	24.6	33.3	22.7	22.7
Incr Delay (d2), s/veh	107.9	3.1	1.7	78.1	3.2	0.0	35.8	10.0	10.1	75.3	12.5	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	4.6	2.8	7.6	5.5	0.0	2.8	8.3	8.2	8.3	10.5	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	142.7	31.8	29.3	111.8	30.7	0.0	70.8	34.6	34.8	108.6	35.1	35.1
LnGrp LOS	F	C	C	F	C		E	C	C	F	D	D
Approach Vol, veh/h		585			512			969			1325	
Approach Delay, s/veh		61.8			62.5			38.2			47.7	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	28.7	13.4	19.7	9.7	33.1	11.0	22.1
Change Period (Y+Rc), s	4.7	* 5.8	5.1	* 5.1	4.7	* 5.8	* 4.7	5.1
Max Green Setting (Gmax), s	8.3	* 25	8.3	* 23	5.0	* 28	* 6.3	25.0
Max Q Clear Time (g_c+I1), s	11.3	19.7	10.3	12.0	6.1	24.2	8.3	14.0
Green Ext Time (p_c), s	0.0	3.2	0.0	1.7	0.0	3.1	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	49.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	441	85	40	502	136	16	3	8	98	3	81
Future Volume (veh/h)	53	441	85	40	502	136	16	3	8	98	3	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	513	99	47	584	158	19	3	9	114	3	94
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	104	738	614	86	720	598	119	43	128	145	5	169
Arrive On Green	0.06	0.40	0.40	0.05	0.39	0.39	0.07	0.10	0.10	0.08	0.11	0.11
Sat Flow, veh/h	1767	1856	1543	1767	1856	1542	1767	409	1226	1767	49	1531
Grp Volume(v), veh/h	62	513	99	47	584	158	19	0	12	114	0	97
Grp Sat Flow(s),veh/h/ln	1767	1856	1543	1767	1856	1542	1767	0	1635	1767	0	1580
Q Serve(g_s), s	1.6	11.0	1.1	1.2	13.5	3.3	0.5	0.0	0.3	3.0	0.0	2.8
Cycle Q Clear(g_c), s	1.6	11.0	1.1	1.2	13.5	3.3	0.5	0.0	0.3	3.0	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.97
Lane Grp Cap(c), veh/h	104	738	614	86	720	598	119	0	171	145	0	174
V/C Ratio(X)	0.60	0.69	0.16	0.55	0.81	0.26	0.16	0.00	0.07	0.79	0.00	0.56
Avail Cap(c_a), veh/h	184	852	708	184	852	708	184	0	901	184	0	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	12.0	3.0	22.3	13.1	10.0	21.1	0.0	19.4	21.6	0.0	20.2
Incr Delay (d2), s/veh	5.4	2.1	0.1	5.4	5.2	0.2	0.6	0.0	0.2	15.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.9	0.5	0.6	5.3	0.9	0.2	0.0	0.1	1.8	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	14.1	3.1	27.6	18.3	10.2	21.7	0.0	19.5	37.4	0.0	23.0
LnGrp LOS	C	B	A	C	B	B	C	A	B	D	A	C
Approach Vol, veh/h		674			789			31			211	
Approach Delay, s/veh		13.7			17.2			20.8			30.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	9.6	6.5	23.7	7.8	9.9	7.0	23.2
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5	26.4	* 5	22.0	5.0	* 26	* 5	22.0
Max Q Clear Time (g_c+I1), s	5.0	2.3	3.2	13.0	2.5	4.8	3.6	15.5
Green Ext Time (p_c), s	0.0	0.0	0.0	2.4	0.0	0.5	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	135	214	668	157	245	915
Future Volume (veh/h)	135	214	668	157	245	915
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	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	147	233	726	171	266	995
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	170	269	897	211	318	2002
Arrive On Green	0.27	0.27	0.32	0.32	0.18	0.57
Sat Flow, veh/h	629	997	2901	661	1753	3589
Grp Volume(v), veh/h	381	0	452	445	266	995
Grp Sat Flow(s),veh/h/ln	1630	0	1749	1722	1753	1749
Q Serve(g_s), s	13.0	0.0	13.8	13.8	8.5	9.9
Cycle Q Clear(g_c), s	13.0	0.0	13.8	13.8	8.5	9.9
Prop In Lane	0.39	0.61		0.38	1.00	
Lane Grp Cap(c), veh/h	440	0	558	550	318	2002
V/C Ratio(X)	0.87	0.00	0.81	0.81	0.84	0.50
Avail Cap(c_a), veh/h	615	0	654	643	385	2327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	18.2	18.2	23.0	7.4
Incr Delay (d2), s/veh	9.3	0.0	6.6	6.7	12.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	5.9	5.8	4.3	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.6	0.0	24.8	24.9	35.8	7.6
LnGrp LOS	C	A	C	C	D	A
Approach Vol, veh/h	381		897			1261
Approach Delay, s/veh	29.6		24.9			13.6
Approach LOS	C		C			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	23.2				38.0		20.3
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 13	21.8				38.8		22.0
Max Q Clear Time (g_c+I1), s	10.5	15.8				11.9		15.0
Green Ext Time (p_c), s	0.2	2.8				7.8		0.8

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	125	206	12	60	254	176	9	40	16	92	67	136
Future Vol, veh/h	125	206	12	60	254	176	9	40	16	92	67	136
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	145	240	14	70	295	205	10	47	19	107	78	158
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	15.6	40.4	12.3	20.7
HCM LOS	C	E	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	14%	100%	0%	100%	0%	31%
Vol Thru, %	62%	0%	94%	0%	59%	23%
Vol Right, %	25%	0%	6%	0%	41%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	125	218	60	430	295
LT Vol	9	125	0	60	0	92
Through Vol	40	0	206	0	254	67
RT Vol	16	0	12	0	176	136
Lane Flow Rate	76	145	253	70	500	343
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.162	0.308	0.498	0.142	0.908	0.635
Departure Headway (Hd)	7.735	7.631	7.078	7.343	6.537	6.666
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	462	469	507	488	555	542
Service Time	5.82	5.393	4.839	5.096	4.29	4.718
HCM Lane V/C Ratio	0.165	0.309	0.499	0.143	0.901	0.633
HCM Control Delay	12.3	13.8	16.7	11.3	44.5	20.7
HCM Lane LOS	B	B	C	B	E	C
HCM 95th-tile Q	0.6	1.3	2.7	0.5	10.9	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	288	13	46	352	162	33	119	41	74	242	99
Future Volume (veh/h)	88	288	13	46	352	162	33	119	41	74	242	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	101	331	15	53	405	186	38	137	47	85	278	114
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	130	730	33	81	459	211	66	295	101	134	327	134
Arrive On Green	0.07	0.42	0.42	0.05	0.39	0.39	0.04	0.22	0.22	0.08	0.26	0.26
Sat Flow, veh/h	1767	1757	80	1767	1183	543	1767	1321	453	1767	1250	513
Grp Volume(v), veh/h	101	0	346	53	0	591	38	0	184	85	0	392
Grp Sat Flow(s),veh/h/ln	1767	0	1837	1767	0	1727	1767	0	1774	1767	0	1763
Q Serve(g_s), s	3.9	0.0	9.5	2.1	0.0	22.3	1.5	0.0	6.3	3.3	0.0	14.8
Cycle Q Clear(g_c), s	3.9	0.0	9.5	2.1	0.0	22.3	1.5	0.0	6.3	3.3	0.0	14.8
Prop In Lane	1.00		0.04	1.00		0.31	1.00		0.26	1.00		0.29
Lane Grp Cap(c), veh/h	130	0	764	81	0	670	66	0	396	134	0	461
V/C Ratio(X)	0.78	0.00	0.45	0.65	0.00	0.88	0.58	0.00	0.47	0.63	0.00	0.85
Avail Cap(c_a), veh/h	197	0	933	176	0	857	129	0	567	207	0	641
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	14.7	32.9	0.0	19.9	33.2	0.0	23.6	31.5	0.0	24.6
Incr Delay (d2), s/veh	10.6	0.0	0.4	8.6	0.0	8.8	7.7	0.0	0.9	4.9	0.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.6	1.0	0.0	9.5	0.7	0.0	2.6	1.5	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	0.0	15.2	41.5	0.0	28.7	40.9	0.0	24.5	36.3	0.0	32.3
LnGrp LOS	D	A	B	D	A	C	D	A	C	D	A	C
Approach Vol, veh/h		447			644			222			477	
Approach Delay, s/veh		21.3			29.8			27.3			33.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	19.8	7.4	33.3	6.8	22.5	9.3	31.4
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2
Max Green Setting (Gmax), s	* 8.2	* 22	* 7	* 36	* 5.1	* 26	* 7.8	* 35
Max Q Clear Time (g_c+I1), s	5.3	8.3	4.1	11.5	3.5	16.8	5.9	24.3
Green Ext Time (p_c), s	0.0	0.8	0.0	2.0	0.0	1.5	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	150	62	123	120	91	55	681	177	96	755	48
Future Volume (veh/h)	107	150	62	123	120	91	55	681	177	96	755	48
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	111	156	65	128	125	0	57	709	184	100	786	50
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	141	248	209	163	270		89	978	254	127	1261	80
Arrive On Green	0.08	0.14	0.14	0.09	0.15	0.00	0.05	0.36	0.36	0.07	0.38	0.38
Sat Flow, veh/h	1739	1826	1544	1739	1826	1547	1739	2726	707	1739	3312	211
Grp Volume(v), veh/h	111	156	65	128	125	0	57	451	442	100	412	424
Grp Sat Flow(s),veh/h/ln	1739	1826	1544	1739	1826	1547	1739	1735	1699	1739	1735	1788
Q Serve(g_s), s	3.8	4.8	2.3	4.3	3.8	0.0	1.9	13.5	13.5	3.4	11.5	11.5
Cycle Q Clear(g_c), s	3.8	4.8	2.3	4.3	3.8	0.0	1.9	13.5	13.5	3.4	11.5	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.12
Lane Grp Cap(c), veh/h	141	248	209	163	270		89	622	609	127	660	680
V/C Ratio(X)	0.78	0.63	0.31	0.79	0.46		0.64	0.73	0.73	0.79	0.62	0.62
Avail Cap(c_a), veh/h	212	704	596	241	735		148	782	766	183	817	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	24.5	23.4	26.6	23.3	0.0	27.9	16.6	16.7	27.3	15.1	15.1
Incr Delay (d2), s/veh	10.6	2.7	0.9	9.8	1.3	0.0	7.5	3.3	3.4	13.2	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	0.8	2.1	1.6	0.0	0.9	5.2	5.1	1.8	4.2	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	27.2	24.2	36.3	24.6	0.0	35.3	19.9	20.0	40.5	16.6	16.6
LnGrp LOS	D	C	C	D	C		D	B	C	D	B	B
Approach Vol, veh/h		332			253			950			936	
Approach Delay, s/veh		30.1			30.5			20.9			19.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	27.3	10.3	13.2	7.8	28.6	9.6	14.0
Change Period (Y+Rc), s	* 4.7	5.8	* 4.7	5.1	* 4.7	5.8	* 4.7	5.1
Max Green Setting (Gmax), s	* 6.3	27.0	* 8.3	23.1	* 5.1	28.2	* 7.3	24.1
Max Q Clear Time (g_c+I1), s	5.4	15.5	6.3	6.8	3.9	13.5	5.8	5.8
Green Ext Time (p_c), s	0.0	6.0	0.1	0.9	0.0	6.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	225	170	80	194	31	32	6	16	25	6	31
Future Volume (veh/h)	26	225	170	80	194	31	32	6	16	25	6	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	242	183	86	209	33	34	6	17	27	6	33
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	61	462	388	147	552	464	72	39	112	59	21	116
Arrive On Green	0.03	0.25	0.25	0.08	0.30	0.30	0.04	0.09	0.09	0.03	0.08	0.08
Sat Flow, veh/h	1767	1856	1557	1767	1856	1559	1767	427	1210	1767	248	1363
Grp Volume(v), veh/h	28	242	183	86	209	33	34	0	23	27	0	39
Grp Sat Flow(s),veh/h/ln	1767	1856	1557	1767	1856	1559	1767	0	1638	1767	0	1610
Q Serve(g_s), s	0.5	3.7	3.2	1.5	2.9	0.5	0.6	0.0	0.4	0.5	0.0	0.7
Cycle Q Clear(g_c), s	0.5	3.7	3.2	1.5	2.9	0.5	0.6	0.0	0.4	0.5	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.85
Lane Grp Cap(c), veh/h	61	462	388	147	552	464	72	0	151	59	0	137
V/C Ratio(X)	0.46	0.52	0.47	0.59	0.38	0.07	0.47	0.00	0.15	0.46	0.00	0.28
Avail Cap(c_a), veh/h	305	1258	1055	479	1441	1211	316	0	1342	272	0	1280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	10.5	10.4	14.3	9.0	8.2	15.2	0.0	13.6	15.4	0.0	13.9
Incr Delay (d2), s/veh	5.4	0.9	0.9	3.7	0.4	0.1	4.8	0.0	0.5	5.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.1	0.9	0.6	0.8	0.1	0.3	0.0	0.1	0.3	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	11.4	11.3	18.0	9.4	8.2	20.0	0.0	14.0	20.9	0.0	15.1
LnGrp LOS	C	B	B	B	A	A	B	A	B	C	A	B
Approach Vol, veh/h		453			328			57			66	
Approach Delay, s/veh		11.9			11.6			17.6			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	7.6	6.9	12.7	5.5	7.4	5.3	14.3
Change Period (Y+Rc), s	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 5	26.6	* 8.8	22.0	* 5.8	25.8	* 5.6	25.2
Max Q Clear Time (g_c+I1), s	2.5	2.4	3.5	5.7	2.6	2.7	2.5	4.9
Green Ext Time (p_c), s	0.0	0.1	0.1	1.8	0.0	0.1	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	134	120	812	152	70	868
Future Volume (veh/h)	134	120	812	152	70	868
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	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	135	121	820	154	71	877
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	174	156	1122	211	118	1938
Arrive On Green	0.20	0.20	0.39	0.39	0.07	0.56
Sat Flow, veh/h	856	767	2981	543	1725	3532
Grp Volume(v), veh/h	257	0	488	486	71	877
Grp Sat Flow(s),veh/h/ln	1630	0	1721	1713	1725	1721
Q Serve(g_s), s	5.9	0.0	9.6	9.6	1.6	5.9
Cycle Q Clear(g_c), s	5.9	0.0	9.6	9.6	1.6	5.9
Prop In Lane	0.53	0.47		0.32	1.00	
Lane Grp Cap(c), veh/h	332	0	668	665	118	1938
V/C Ratio(X)	0.77	0.00	0.73	0.73	0.60	0.45
Avail Cap(c_a), veh/h	909	0	855	852	219	2513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	10.3	10.3	17.8	5.0
Incr Delay (d2), s/veh	3.9	0.0	2.3	2.4	4.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.9	2.9	0.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	0.0	12.7	12.7	22.7	5.2
LnGrp LOS	B	A	B	B	C	A
Approach Vol, veh/h	257		974			948
Approach Delay, s/veh	18.7		12.7			6.5
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.9	19.9				26.8		12.6
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.6
Max Green Setting (Gmax), s	* 5	19.6				28.8		22.0
Max Q Clear Time (g_c+I1), s	3.6	11.6				7.9		7.9
Green Ext Time (p_c), s	0.0	3.8				6.1		0.7

Intersection Summary		
HCM 6th Ctrl Delay		10.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	199	16	56	205	17	26	3	11	15	13	9
Future Vol, veh/h	9	199	16	56	205	17	26	3	11	15	13	9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	205	16	58	211	18	27	3	11	15	13	9
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.7	9.6	8.6	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	65%	100%	0%	100%	0%	41%
Vol Thru, %	7%	0%	93%	0%	92%	35%
Vol Right, %	28%	0%	7%	0%	8%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	9	215	56	222	37
LT Vol	26	9	0	56	0	15
Through Vol	3	0	199	0	205	13
RT Vol	11	0	16	0	17	9
Lane Flow Rate	41	9	222	58	229	38
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.059	0.014	0.305	0.087	0.311	0.055
Departure Headway (Hd)	5.184	5.506	4.951	5.448	4.892	5.16
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	690	651	727	659	735	693
Service Time	3.224	3.233	2.678	3.174	2.618	3.199
HCM Lane V/C Ratio	0.059	0.014	0.305	0.088	0.312	0.055
HCM Control Delay	8.6	8.3	9.8	8.7	9.8	8.5
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0	1.3	0.3	1.3	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	190	14	26	166	60	34	145	35	74	233	78
Future Volume (veh/h)	21	190	14	26	166	60	34	145	35	74	233	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	202	15	28	177	64	36	154	37	79	248	83
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	361	27	60	283	102	74	250	60	236	352	118
Arrive On Green	0.03	0.21	0.21	0.03	0.22	0.22	0.04	0.17	0.17	0.13	0.26	0.26
Sat Flow, veh/h	1767	1705	127	1767	1298	469	1767	1446	347	1767	1330	445
Grp Volume(v), veh/h	22	0	217	28	0	241	36	0	191	79	0	331
Grp Sat Flow(s),veh/h/ln	1767	0	1832	1767	0	1767	1767	0	1793	1767	0	1775
Q Serve(g_s), s	0.5	0.0	4.0	0.6	0.0	4.6	0.7	0.0	3.7	1.5	0.0	6.3
Cycle Q Clear(g_c), s	0.5	0.0	4.0	0.6	0.0	4.6	0.7	0.0	3.7	1.5	0.0	6.3
Prop In Lane	1.00		0.07	1.00		0.27	1.00		0.19	1.00		0.25
Lane Grp Cap(c), veh/h	48	0	387	60	0	385	74	0	310	236	0	470
V/C Ratio(X)	0.46	0.00	0.56	0.47	0.00	0.63	0.49	0.00	0.62	0.34	0.00	0.70
Avail Cap(c_a), veh/h	236	0	1075	236	0	1038	236	0	928	321	0	1004
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	13.2	17.8	0.0	13.3	17.6	0.0	14.3	14.7	0.0	12.4
Incr Delay (d2), s/veh	6.6	0.0	1.3	5.6	0.0	1.7	4.9	0.0	2.0	0.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.4	0.3	0.0	1.6	0.4	0.0	1.3	0.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	14.5	23.4	0.0	14.9	22.5	0.0	16.3	15.6	0.0	14.4
LnGrp LOS	C	A	B	C	A	B	C	A	B	B	A	B
Approach Vol, veh/h		239			269			227			410	
Approach Delay, s/veh		15.4			15.8			17.3			14.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	10.7	5.5	12.1	5.8	14.1	5.2	12.4				
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2	* 4.2				
Max Green Setting (Gmax), s	* 6.8	* 19	* 5	* 22	* 5	* 21	* 5	* 22				
Max Q Clear Time (g_c+I1), s	3.5	5.7	2.6	6.0	2.7	8.3	2.5	6.6				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.0	0.0	1.5	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	EB	WB	WB	WB	B16	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	T	L	T	TR	L	T
Maximum Queue (ft)	316	255	162	120	382	240	90	219	251	260	314	372
Average Queue (ft)	140	122	57	97	152	24	5	55	152	175	135	222
95th Queue (ft)	263	207	108	146	289	140	34	133	244	268	242	321
Link Distance (ft)		1847			310		754		1757	1757		1553
Upstream Blk Time (%)					2							
Queuing Penalty (veh)					13							
Storage Bay Dist (ft)	250		250	55		120		160			300	
Storage Blk Time (%)	4	0		31	40				8		2	1
Queuing Penalty (veh)	13	0		137	138				6		9	3

Intersection: 1: Mercey Springs Road & B Street

Movement	SB
Directions Served	TR
Maximum Queue (ft)	339
Average Queue (ft)	212
95th Queue (ft)	308
Link Distance (ft)	1553
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	73	224	55	198	324	200	45	22	105	44
Average Queue (ft)	39	118	26	36	167	65	12	5	49	20
95th Queue (ft)	66	201	54	98	289	167	36	20	83	44
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150	120		50	100		100	
Storage Blk Time (%)		4			34	2			0	
Queuing Penalty (veh)		6			61	11			0	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	240	371	240	189	386	156	181	43	156	198	138
Average Queue (ft)	62	180	50	69	178	92	100	10	96	113	67
95th Queue (ft)	169	314	156	164	299	138	172	30	147	177	120
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		10		0	21	0	2		0	1	
Queuing Penalty (veh)		16		0	17	0	3		0	4	

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	76
Average Queue (ft)	40
95th Queue (ft)	62
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	344	206	218	219	275	257
Average Queue (ft)	135	140	145	129	149	144
95th Queue (ft)	266	210	218	217	253	236
Link Distance (ft)	1747	1664	1664		1757	1757
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)				25	9	
Queuing Penalty (veh)				113	23	

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	72	120	73	197	55	220
Average Queue (ft)	44	61	32	93	32	73
95th Queue (ft)	68	97	56	156	54	139
Link Distance (ft)		1747		687	1642	232
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	138	212	94	342	94	119	136	206
Average Queue (ft)	66	96	46	200	31	66	48	138
95th Queue (ft)	114	159	96	314	73	104	109	208
Link Distance (ft)		687		2463		1574		1410
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)				5				
Queuing Penalty (veh)				2				

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (ft)	84	252	247	518	552	51	572
Average Queue (ft)	27	135	115	299	312	4	260
95th Queue (ft)	62	228	204	503	515	23	460
Link Distance (ft)		1714	1714	2486	2486	130	1642
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125						
Storage Blk Time (%)		9		19			
Queuing Penalty (veh)		3		0			

Network Summary

Network wide Queuing Penalty: 579

Intersection: 1: Mercey Springs Road & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	117	144	75	120	364	240	219	245	251	154	314	337
Average Queue (ft)	68	72	29	77	99	16	35	135	165	87	135	123
95th Queue (ft)	122	121	64	116	214	112	110	224	242	139	220	217
Link Distance (ft)		1847			310			1757	1757		1553	1553
Upstream Blk Time (%)					1							
Queuing Penalty (veh)					3							
Storage Bay Dist (ft)	250		250	55		120	160			300		
Storage Blk Time (%)				35	19			6			0	
Queuing Penalty (veh)				75	41			3			0	

Intersection: 2: Main Access/Las Palmas Street & B Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	74	119	92	91	113	52	65	43	88	43
Average Queue (ft)	27	51	39	47	49	9	22	7	16	15
95th Queue (ft)	64	108	72	80	93	35	51	26	48	35
Link Distance (ft)		405			424			302		1332
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150	120		50	100		100	
Storage Blk Time (%)					7	0			0	
Queuing Penalty (veh)					8	0			0	

Intersection: 3: Place Road & B Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	68	146	77	72	170	91	113	45	147	180	72
Average Queue (ft)	31	58	13	11	68	40	49	13	38	67	42
95th Queue (ft)	59	121	42	38	130	68	98	35	95	119	68
Link Distance (ft)		424			618		279			1564	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160		160	115		160		160	165		165
Storage Blk Time (%)		0			2				0	0	
Queuing Penalty (veh)		0			0				1	0	

Intersection: 4: Place Road & Parent Exit

Movement	EB
Directions Served	R
Maximum Queue (ft)	109
Average Queue (ft)	57
95th Queue (ft)	90
Link Distance (ft)	237
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Mercey Springs Road & San Luis Street

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	183	219	229	110	204	192
Average Queue (ft)	90	122	124	49	74	89
95th Queue (ft)	156	202	224	92	161	169
Link Distance (ft)	1747	1664	1664		1757	1757
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)				2	3	
Queuing Penalty (veh)				8	2	

Intersection: 6: Miller Lane/Driveway & San Luis Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	77	54	135	55	54
Average Queue (ft)	10	48	30	51	28	26
95th Queue (ft)	33	70	48	85	52	51
Link Distance (ft)		1747		687	1642	232
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Place Road & San Luis Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	54	141	72	183	68	159	96	202
Average Queue (ft)	13	65	15	85	23	71	41	93
95th Queue (ft)	40	113	47	149	55	126	82	174
Link Distance (ft)		687		2463		1574		1410
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: Driveway/Miller Lane & Pacheco Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	184	454	393	22	456	452	97	390
Average Queue (ft)	43	160	154	2	180	197	17	151
95th Queue (ft)	124	339	294	13	312	331	52	284
Link Distance (ft)		1714	1714		2486	2486	130	1642
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			185				
Storage Blk Time (%)		9			7			
Queuing Penalty (veh)		3			0			

Network Summary

Network wide Queuing Penalty: 147

Appendix J: Traffic Signal Warrants

Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions

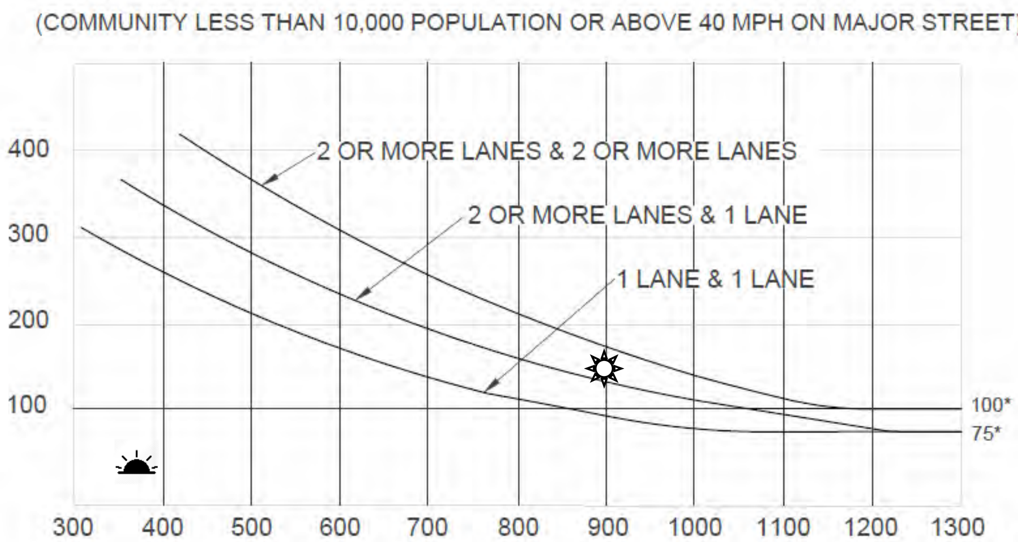
2. Las Palmas Street / B Street

AM (MD) Peak Hour

Las Palmas Street

Highest Approach Volume =

142 (45) VPH



B Street Total of Both Approaches =

899 (372) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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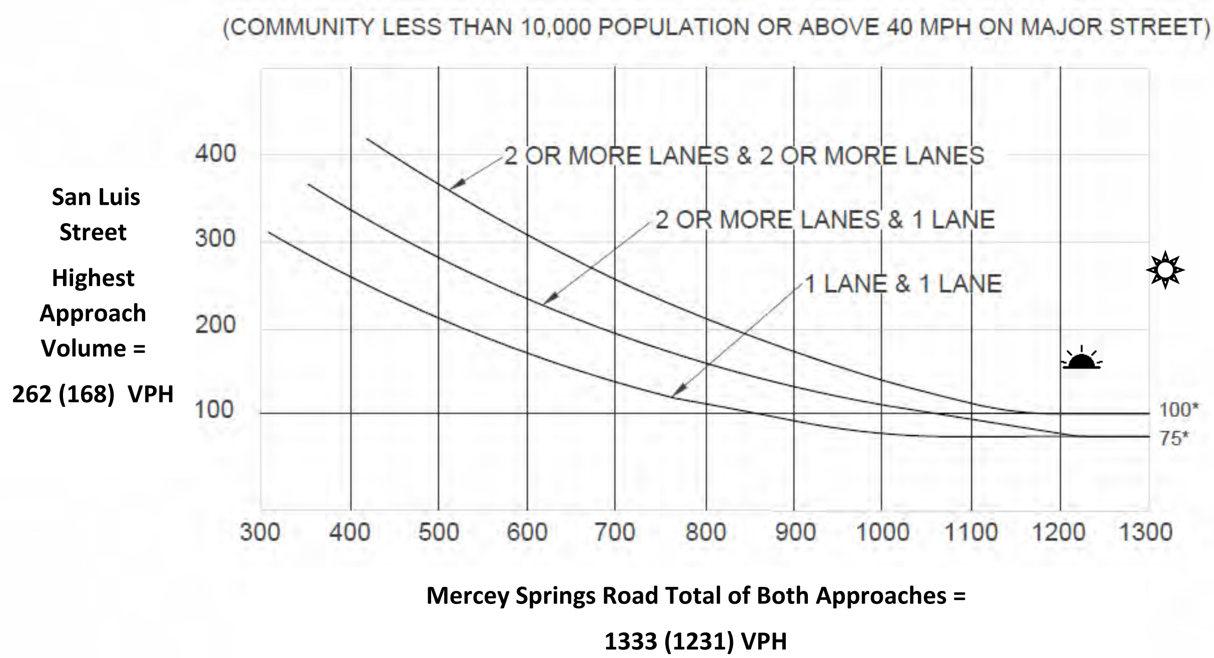
(559) 570-8991

Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions

5. Mercey Springs Road / San Luis Street

AM (MD) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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Part 4: Highway Traffic Signals
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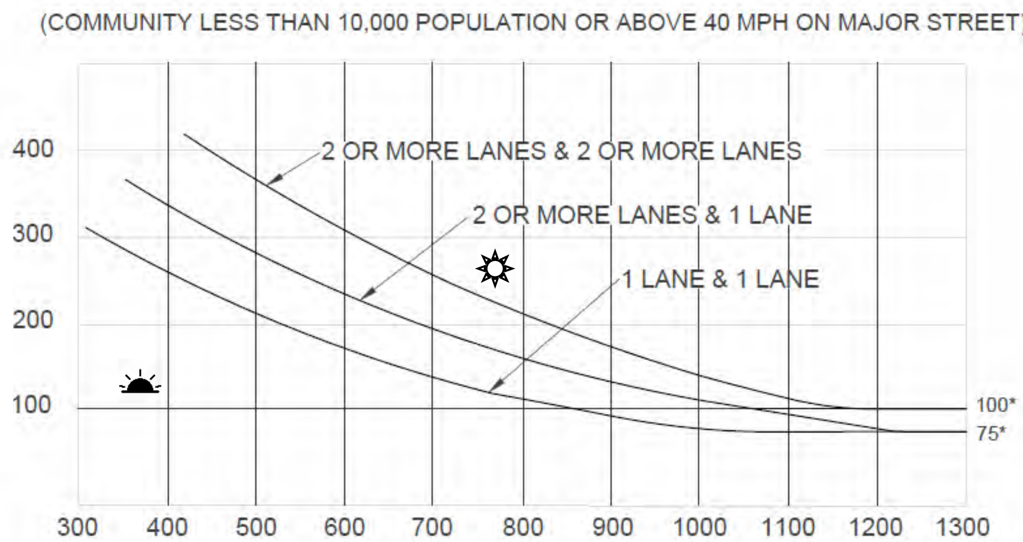
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions

6. Miller Lane / San Luis Street

AM (MD) Peak Hour

Miller Lane Highest Approach Volume = 274 (111) VPH



San Luis Street Total of Both Approaches = 782 (372) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

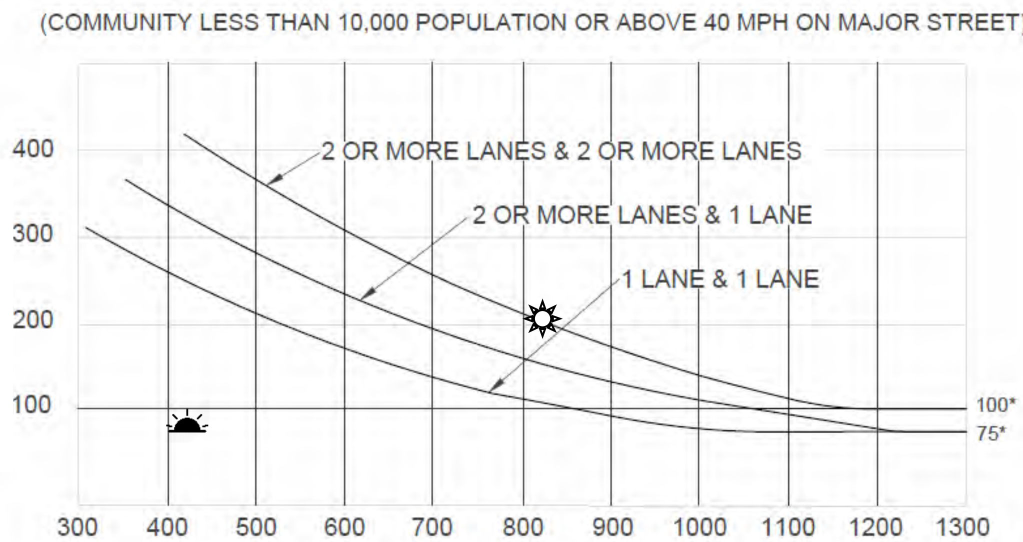
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
7. Place Road / San Luis Street
AM (MD) Peak Hour

Place Road Highest Approach Volume = 201 (92) VPH



San Luis Street Total of Both Approaches = 823 (410) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

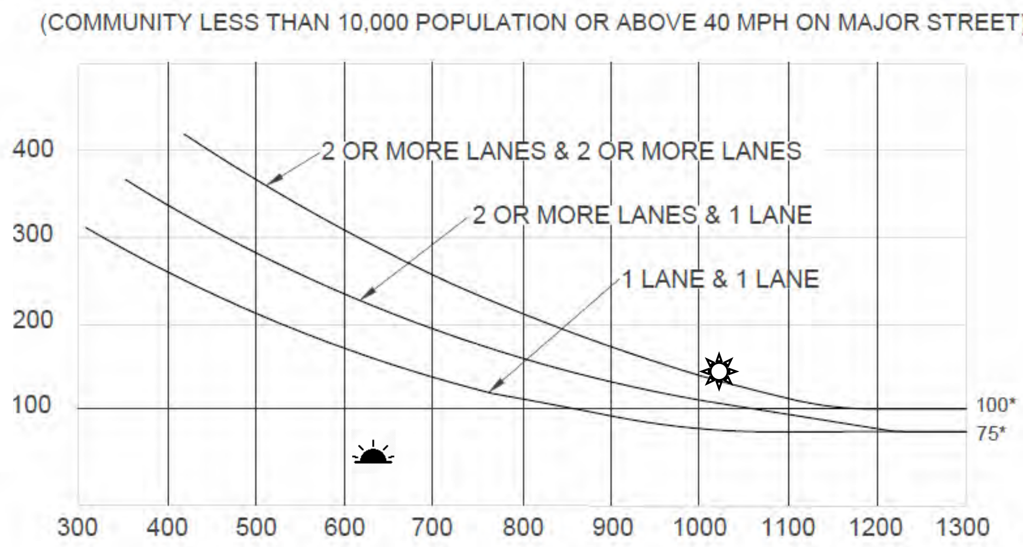
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
2. Las Palmas Street / B Street
AM (MD) Peak Hour

Las Palmas Street

Highest Approach Volume =

145 (54) VPH



B Street Total of Both Approaches =

1025 (626) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

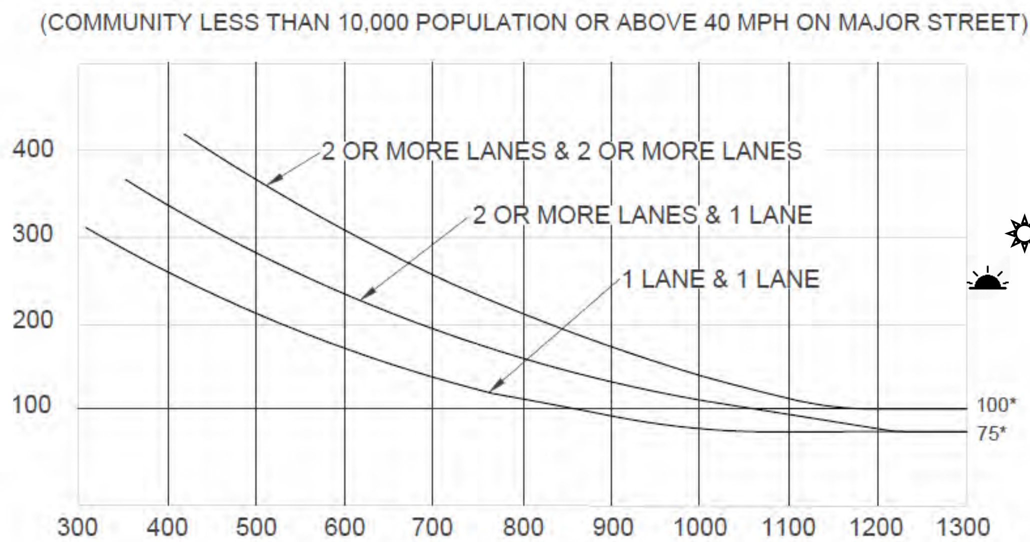
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
5. Mercey Springs Road / San Luis Street
AM (MD) Peak Hour

San Luis Street
Highest Approach Volume =
301 (244) VPH



Mercey Springs Road Total of Both Approaches =
1412 (1351) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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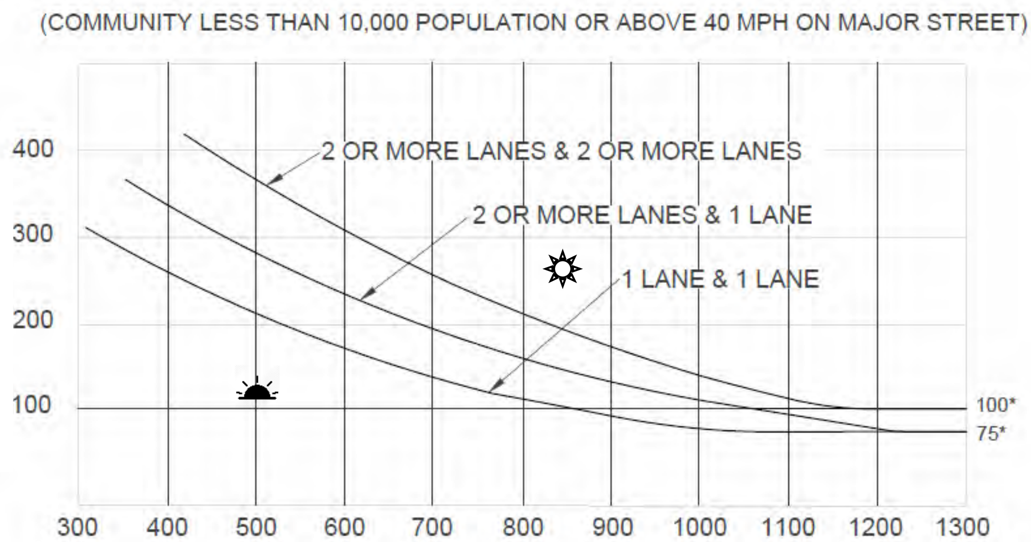
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
6. Miller Lane / San Luis Street
AM (MD) Peak Hour

San Luis Street
Highest Approach Volume =
274 (114) VPH



Miller Lane Total of Both Approaches =
847 (500) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
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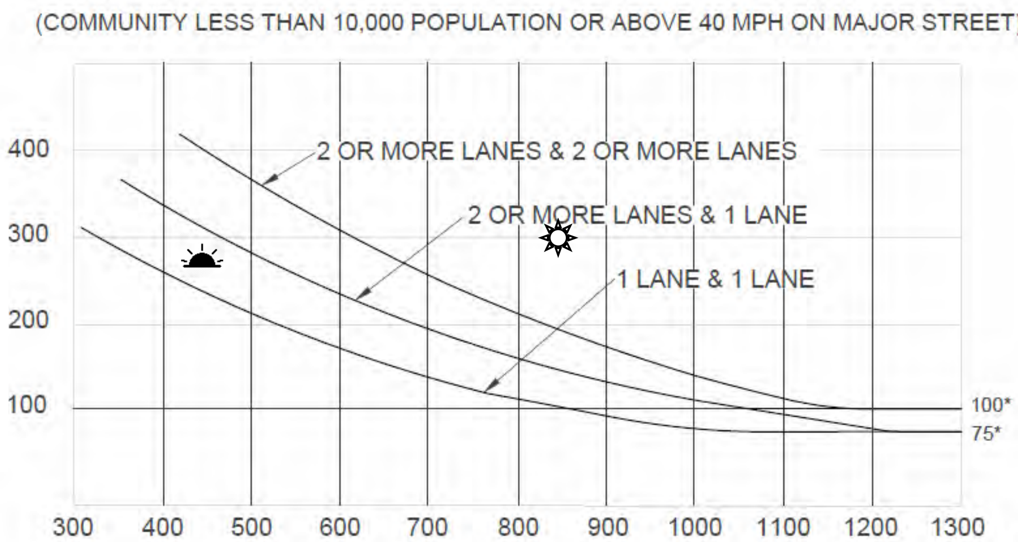
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
7. Place Road / San Luis Street
AM (MD) Peak Hour

Place Road Highest Approach Volume = 299 (286) VPH



San Luis Street Total of Both Approaches = 841 (444) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

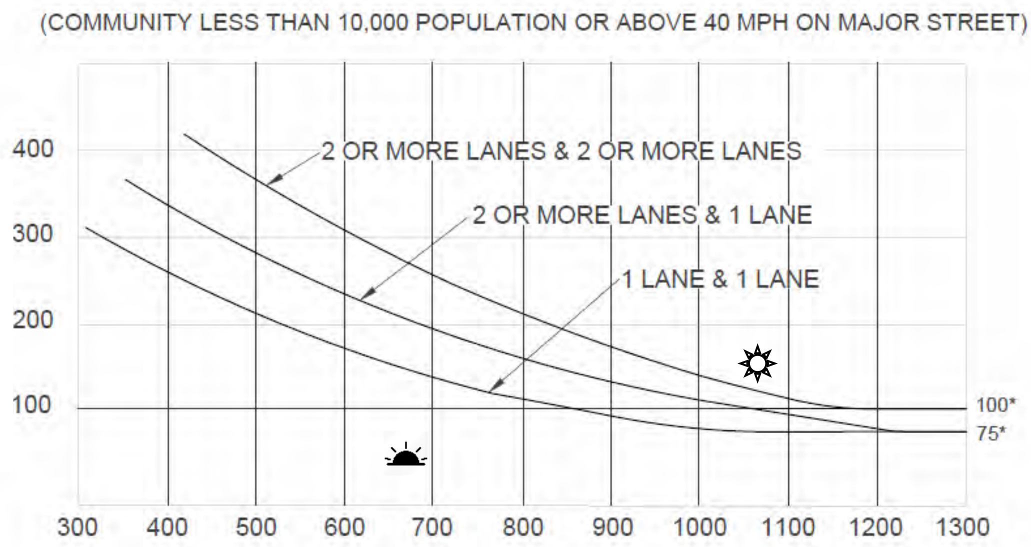
AM Peak Hour – Signal Warrant is Met
MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
2. Las Palmas Street / B Street
AM (MD) Peak Hour

Las Palmas Street Highest Approach Volume = 145 (54) VPH



B Street Total of Both Approaches = 1073 (684) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

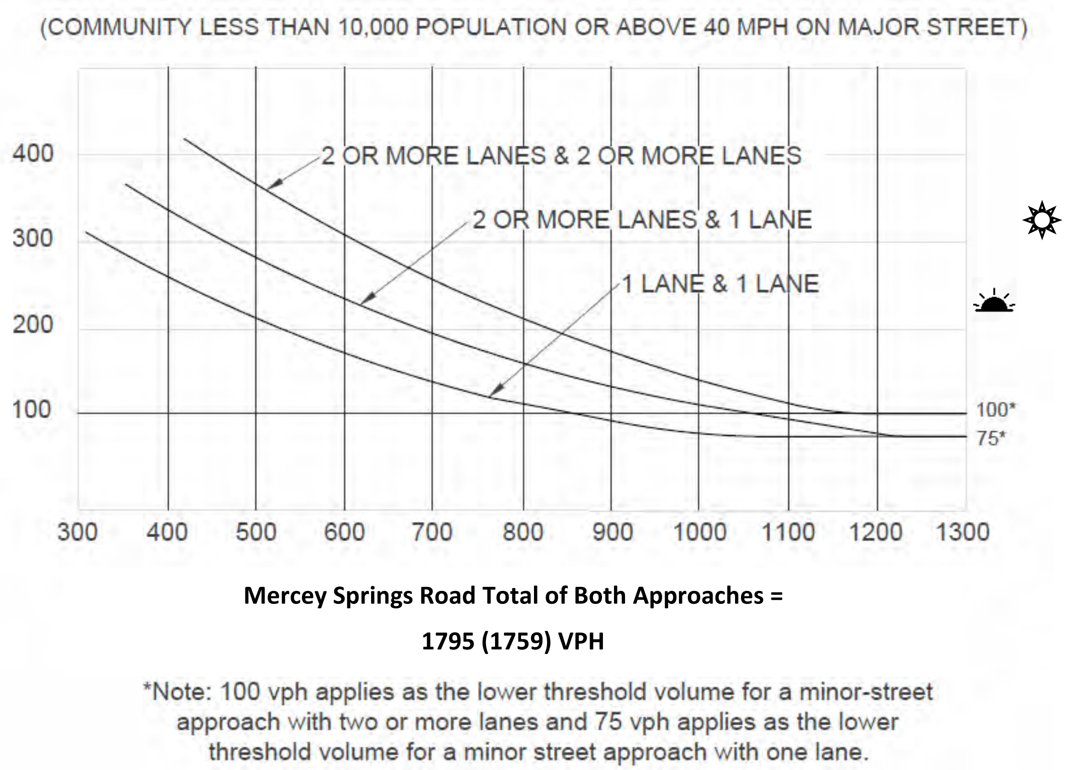
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
5. Mercey Springs Road / San Luis Street
AM (MD) Peak Hour

San Luis Street
Highest Approach Volume =
313 (237) VPH



Mercey Springs Road Total of Both Approaches =
1795 (1759) VPH

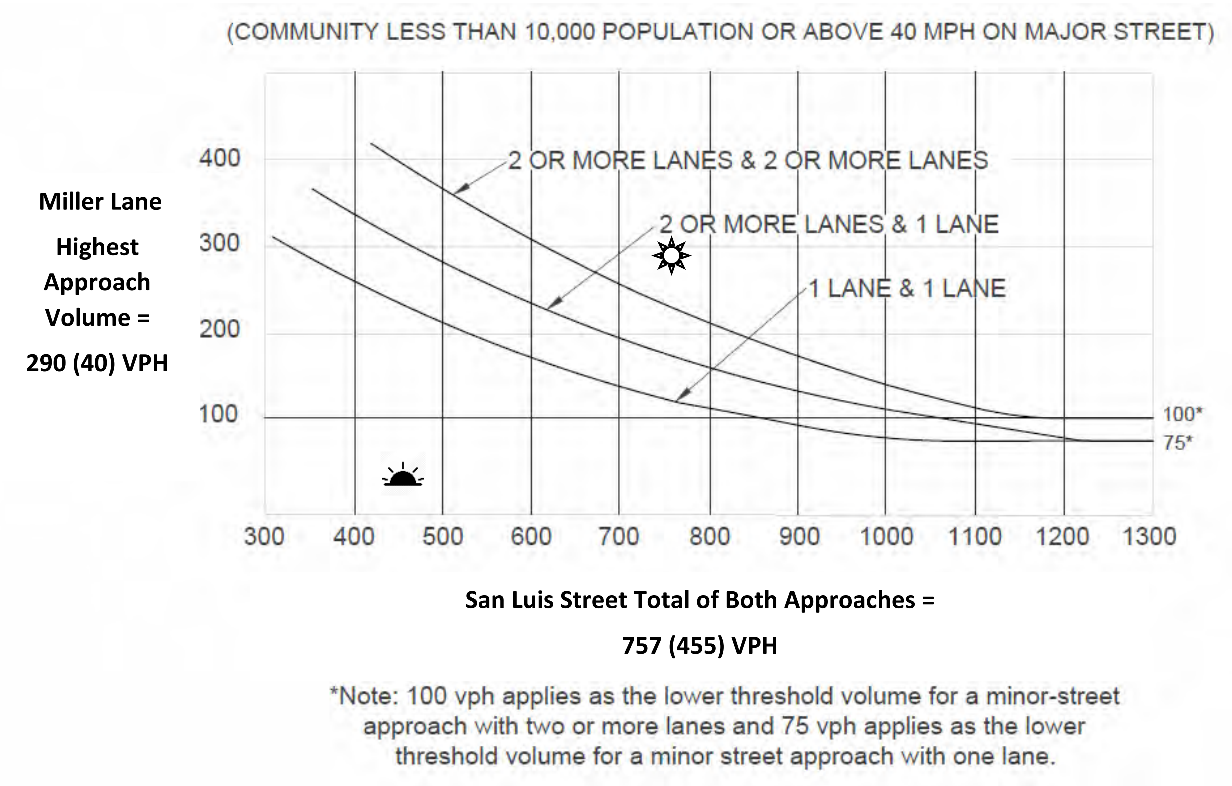
☼ **AM Peak Hour – Signal Warrant is Met**

MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
6. Miller Lane / San Luis Street
AM (MD) Peak Hour

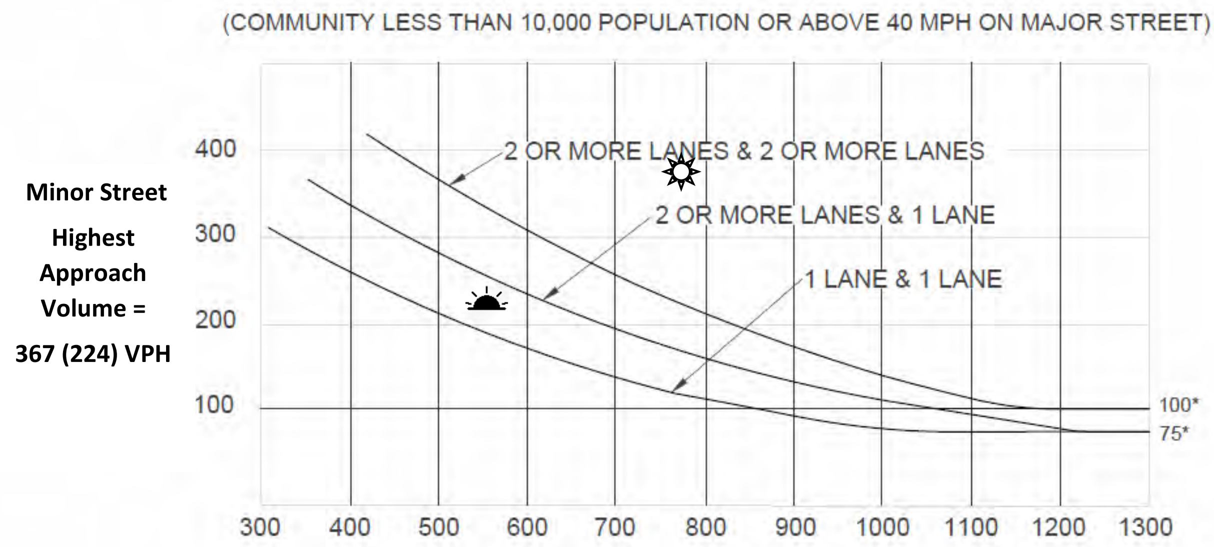


AM Peak Hour – Signal Warrant is Met
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
7. Place Road / San Luis Street
AM (MD) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

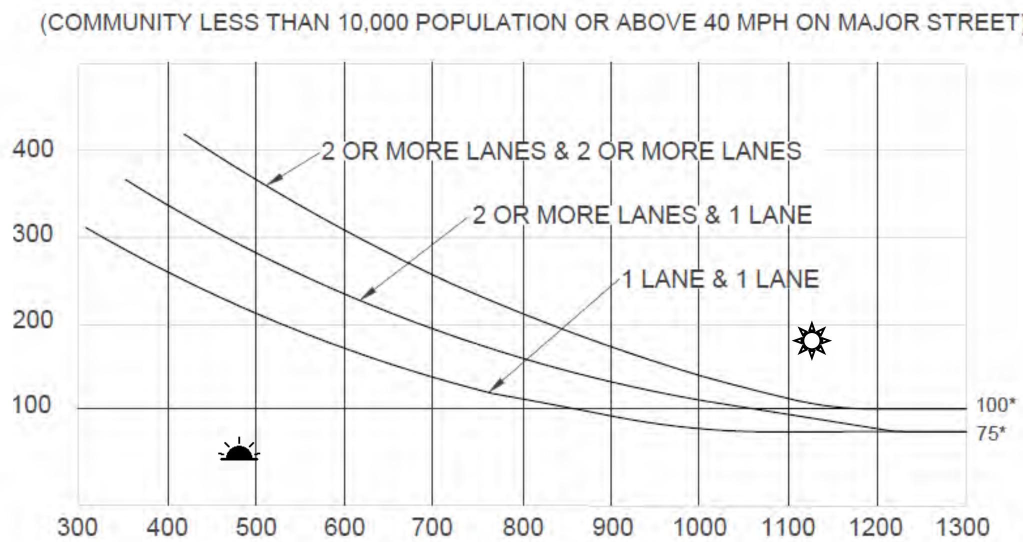
Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 No Project Traffic Conditions
2. Las Palmas Street / B Street
AM (MD) Peak Hour

Las Palmas Street

Highest Approach Volume =

179 (56) VPH



B Street Total of Both Approaches =

1131 (472) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

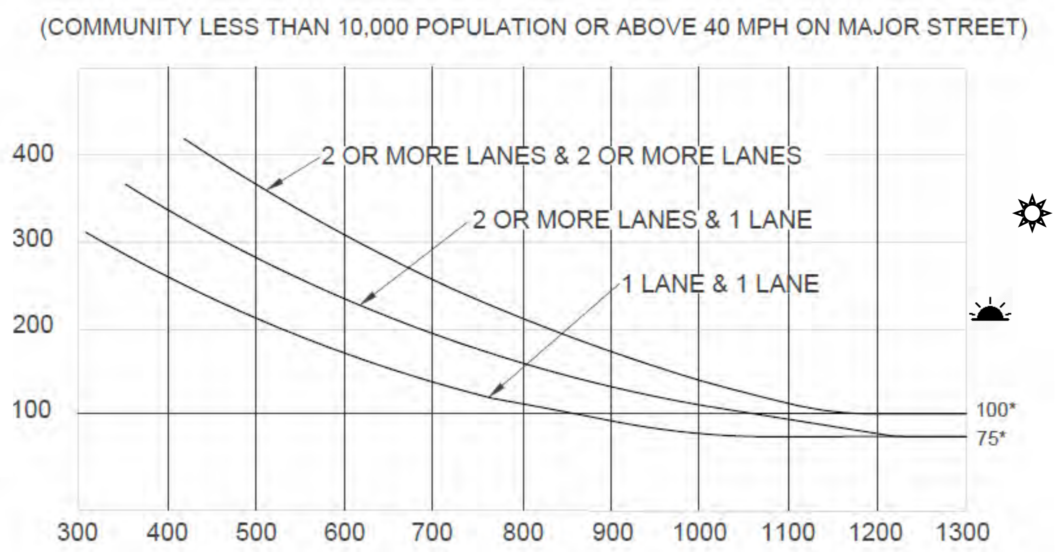
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 No Project Traffic Conditions
5. Mercey Springs Road / San Luis Street
AM (MD) Peak Hour

San Luis Street
Highest Approach Volume =
330 (217) VPH



Mercey Springs Road Total of Both Approaches =
1906 (1782) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

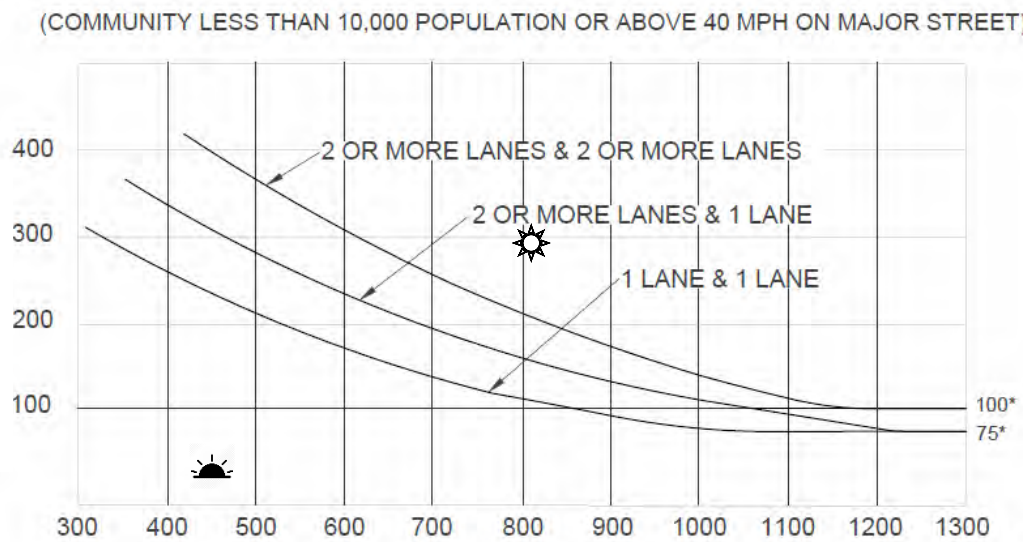
☼ **AM Peak Hour – Signal Warrant is Met**
MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 No Project Traffic Conditions
6. Miller Lane / San Luis Street
AM (MD) Peak Hour

Miller Lane Highest Approach Volume = 295 (40) VPH



San Luis Street Total of Both Approaches = 807 (450) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

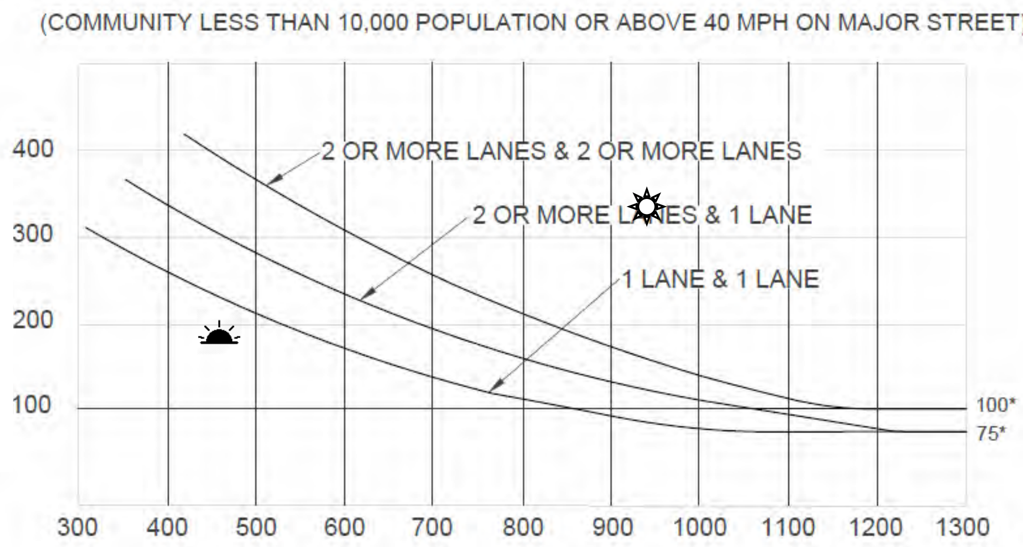
Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 No Project Traffic Conditions

7. Place Road / San Luis Street

AM (MD) Peak Hour

Place Road Highest Approach Volume = 317 (195) VPH



San Luis Street Total of Both Approaches = 941 (462) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

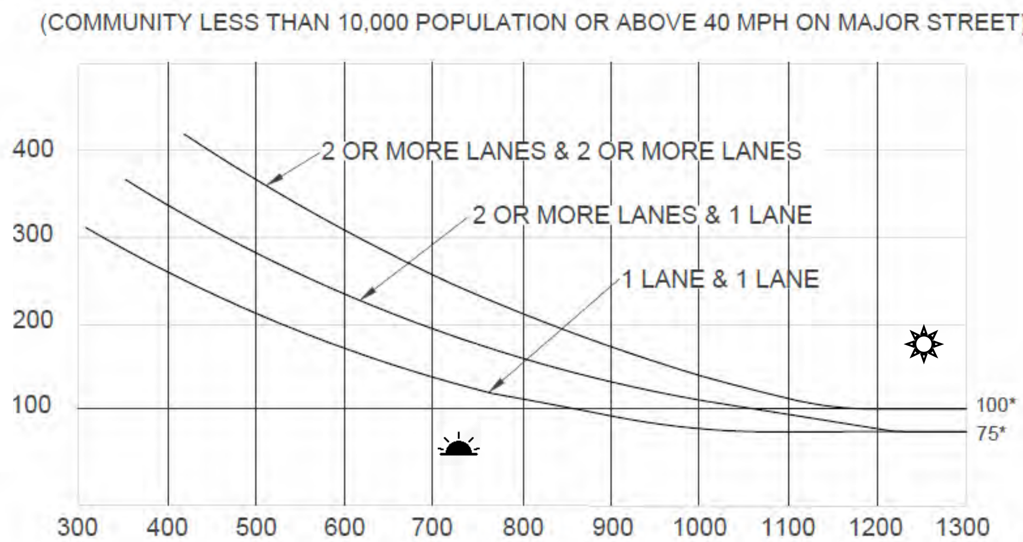
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 plus Project Traffic Conditions
2. Las Palmas Street / B Street
AM (MD) Peak Hour

Las Palmas Street
Highest Approach Volume =
182 (62) VPH



B Street Total of Both Approaches =
1257 (726) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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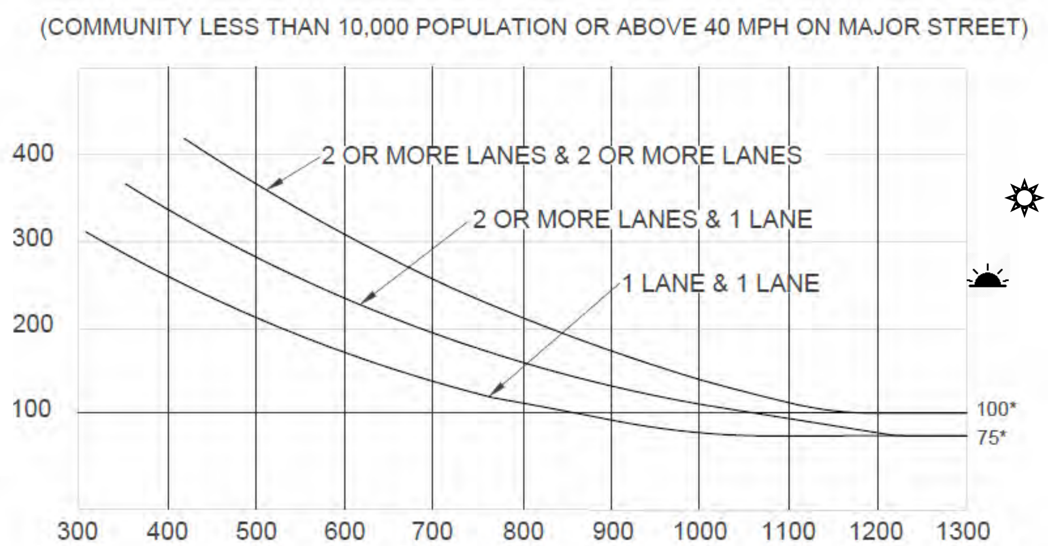
Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 plus Project Traffic Conditions
5. Mercey Springs Road / San Luis Street
AM (MD) Peak Hour

San Luis Street

Highest Approach Volume =

349 (254) VPH



Mercey Springs Road Total of Both Approaches =

1985 (1902) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

MD Peak Hour – Signal Warrant is Met

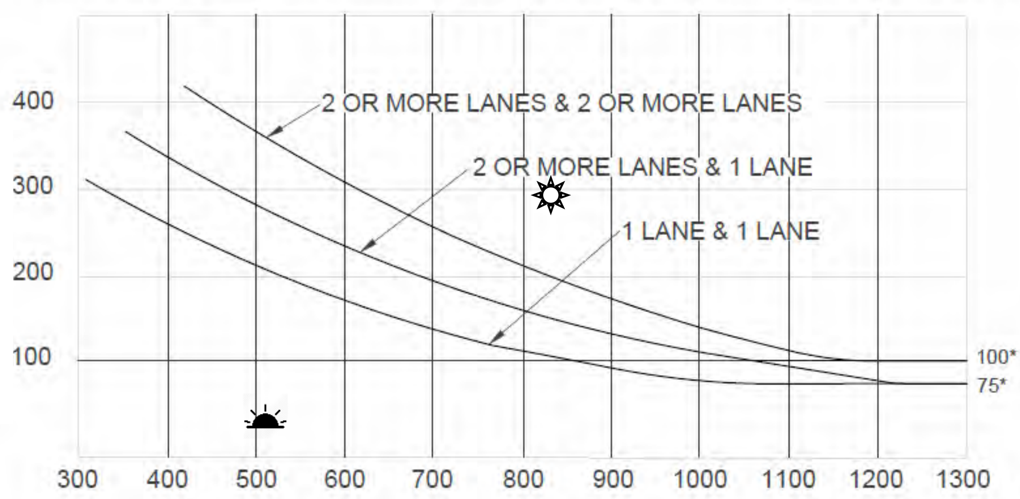
Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 plus Project Traffic Conditions
6. Miller Lane / San Luis Street
AM (MD) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Miller Lane Highest Approach Volume = 295 (40) VPH



San Luis Street Total of Both Approaches = 833 (502) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

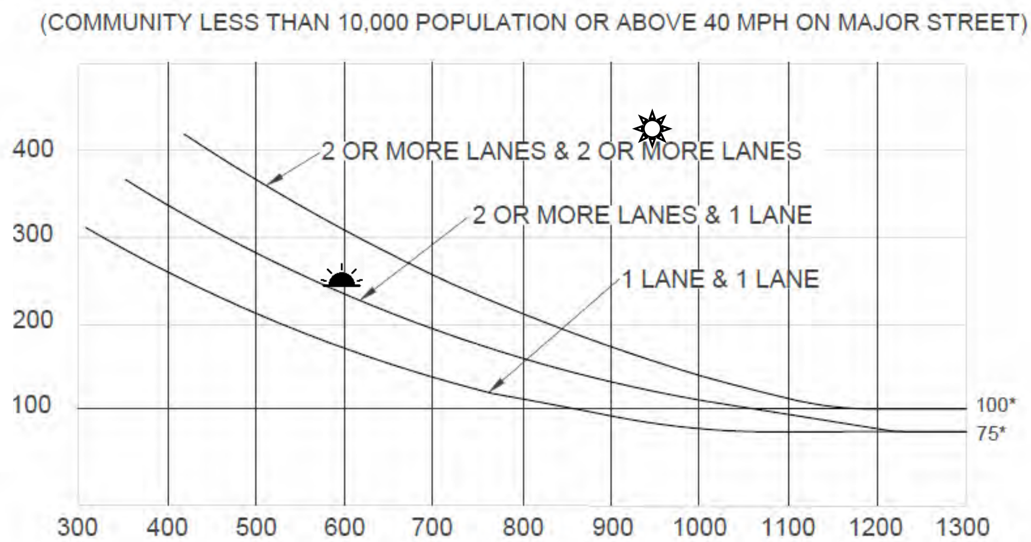
MD Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2044 plus Project Traffic Conditions
7. Place Road / San Luis Street
AM (MD) Peak Hour

Minor Street Highest Approach Volume = 415 (252) VPH



Major Street Total of Both Approaches = 949 (599) VPH

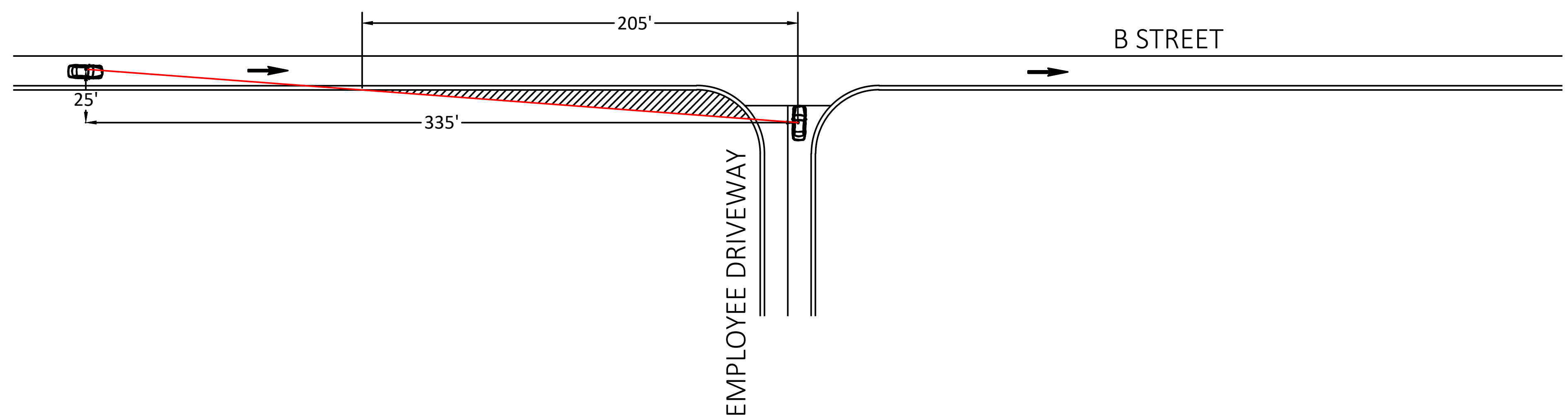
*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

MD Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Appendix K: Corner Sight Distance



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(049-003) 11/30/23 - CT

LEGEND:

NO OBSTRUCTIONS GREATER THAN 24" ABOVE STREET GRADE SHOULD BE PERMITTED WITHIN THESE AREAS.

ROADWAY: B STREET

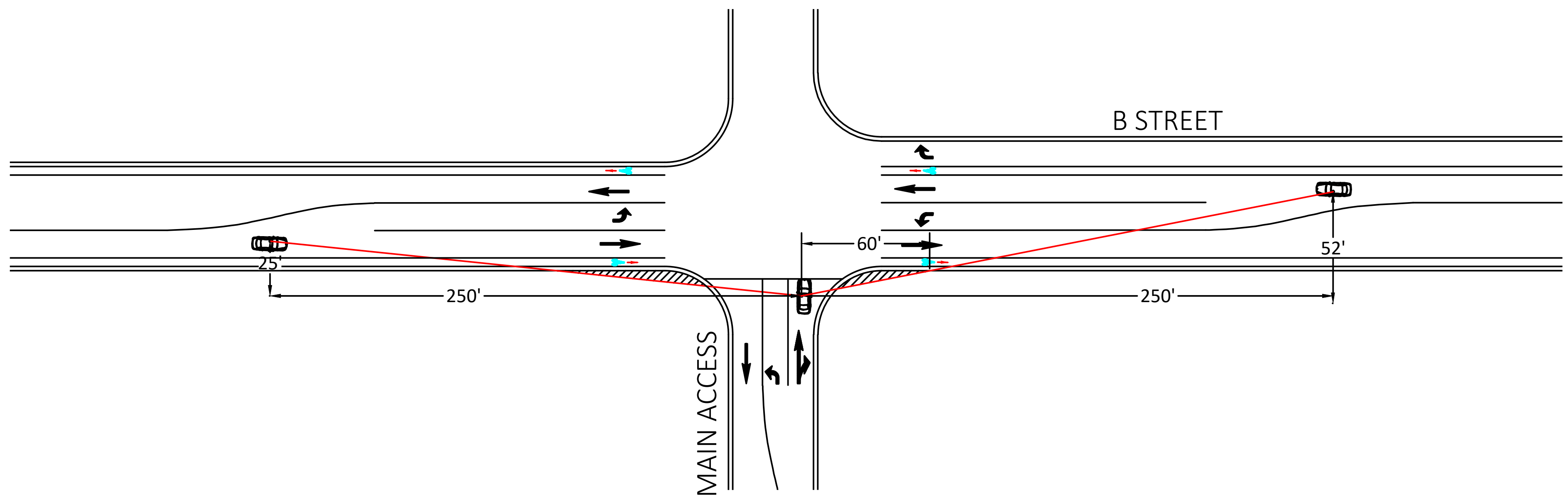
DESIGN SPEED: 35 MPH

REQUIRED CORNER SIGHT DISTANCE: 335 FT MIN

Not To Scale

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Corner Sight Distance Evaluation - 35 MPH

Exhibit K 2



LEGEND:

NO OBSTRUCTIONS GREATER THAN 24" ABOVE STREET GRADE SHOULD BE PERMITTED WITHIN THESE AREAS.

ROADWAY: B STREET

DESIGN SPEED: 35 MPH

REQUIRED CORNER SIGHT DISTANCE: 250 FT MIN

NOTE:

CORNER SIGHT DISTANCE DEPENDENT ON FINAL DESIGN OF SIGNALIZED INTERSECTION.

Not To Scale

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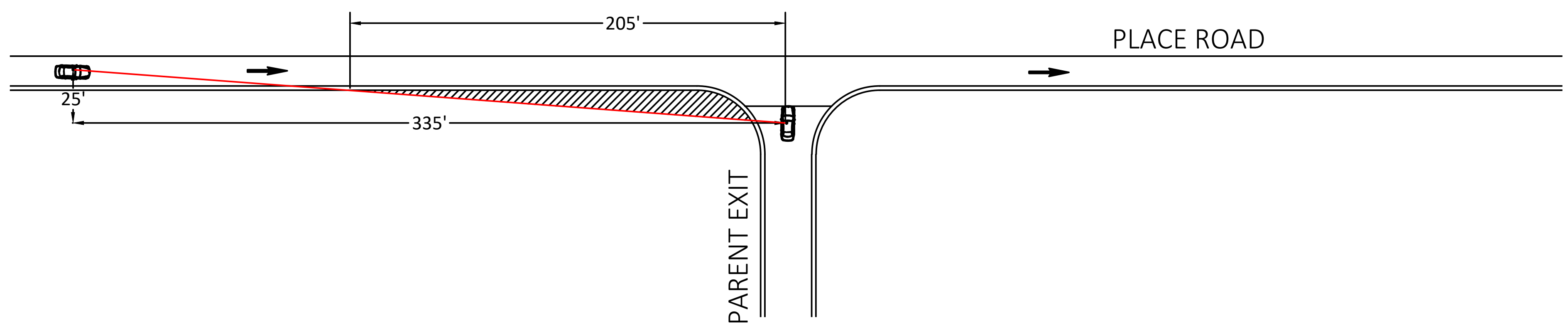
(049-003) 12/01/23 - CT

Los Banos Unified School District Transitional Kindergarten TIA - City of Los Banos
Corner Sight Distance Evaluation - 35 MPH

Exhibit K 3



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(049-003) 11/30/23 - CT

LEGEND:

NO OBSTRUCTIONS GREATER THAN 24" ABOVE STREET GRADE SHOULD BE PERMITTED WITHIN THESE AREAS.

ROADWAY: PLACE ROAD

DESIGN SPEED: 35 MPH

REQUIRED CORNER SIGHT DISTANCE: 335 FT MIN

Not To Scale

Appendix 9

Los Banos Unified School District

Early Learning Center Project

Vehicle Miles Traveled Analysis

Vehicle Miles Traveled Analysis

Los Banos Unified School District Transitional Kindergarten

Located on the Southwest Corner of B Street and Place Road

In the City of Los Banos, California

Prepared for:

Odell Planning & Research
49346 Road 426, Suite 2
Fresno, CA 93644

January 5, 2024

Project No. 049-003

JLB TRAFFIC ENGINEERING, INC.

Traffic Engineering, Transportation Planning, & Parking Solutions

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Traffic Engineering, Transportation Planning, & Parking Solutions

Vehicle Miles Traveled Analysis

For the Los Banos Unified School District Transitional Kindergarten located on the Southwest Corner of Place Road and B Street

In the City of Los Banos, CA

January 5, 2024

This Vehicle Miles Traveled Analysis has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

Jose Luis Benavides, P.E., T.E.

President

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List of Appendices

Project Description

This report describes a **Vehicle Miles Traveled (VMT) Analysis** prepared by **JLB Traffic Engineering, Inc.** (JLB) for **Los Banos Unified School District Transitional Kindergarten (Project)** located on the southwest corner of Place Road and B Street in the City of Los Banos. The Project proposes to develop a Transitional Kindergarten with 19 classrooms to serve 300 students for the Los Banos Unified School District (LBUSD). A Project Site Plan is shown in Appendix A.

VMT Analysis

Regulatory Setting and Criteria of Significance

Senate Bill (SB) 743 requires that relevant CEQA analysis of transportation impacts be conducted using a metric known as VMT instead of Level of Service (LOS). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roads. If the project adds excessive car travel onto our roads, the project may cause a significant transportation impact.

The State CEQA Guidelines were amended to implement SB 743, by adding Section 15064.3. Among its provisions, Section 15064.3 confirms that, except with respect to transportation projects, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, LOS measures of impacts on traffic facilities are no longer a relevant CEQA criteria for transportation impacts.

CEQA Guidelines Section 15064.3(b)(4) states that "[a] lead agency has discretion to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revision to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section."

This VMT Analysis follows the Merced County Association of Governments' (MCAG) *VMT Thresholds and Implementation Guidelines* referred to in this document as the MCAG VMT Guidelines. The MCAG VMT Guidelines were published in September 2022 and are consistent with the requirements of CEQA Guidelines Sections 15064.3 and 15064.7. The December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) published by the Governor's Office of Planning and Research (OPR), was utilized as a reference and guidance document in the preparation of the MCAG VMT Guidelines.

The MCAG VMT Guidelines adopted a screening standard and criteria that can be used to screen out qualified projects that meet the adopted criteria from needing to prepare a detailed VMT analysis. These criteria may be size, location, proximity to transit or trip making potential. In general, development projects that meet one or more of the following criteria can be screened out from a quantitative VMT analysis.

1. Project Located in a Transit Priority Area/High Quality Transit Corridor (within 0.5 miles of a transit stop)
2. Project is local-serving retail of less than 50,000 square feet
3. Redevelopment projects that result in an equal or net reduction in VMT
4. Project has 100% affordable-housing units
5. Project is a low trip generator (Less than 1,000 average daily trips)
6. Institutional/ government and public service that support community health, safety and welfare
7. Local parks, daycare centers, student housing projects, local-serving gas stations, banks and K-12 public schools
8. Project is located in a low VMT zone

This screening tool is consistent with the OPR December 2018 Guidance referenced above. The screening tool includes an analysis of those portions of the city that satisfy the standard of reducing VMT by 14% from existing per capita and per employee VMT averages within the relevant region. The relevant region adopted by MCAG is Merced County.

For projects that are not screened out, a quantitative analysis of VMT impacts must be prepared and compared against the adopted VMT thresholds of significance. The MCAG VMT Guidelines document includes thresholds of significance for development projects, transportation projects and land use plans. These thresholds of significance were developed using the County of Merced as the applicable region, and the required reduction of VMT (as adopted in the MCAG VMT Guidelines) corresponds to Merced County's contribution to the statewide GHG emission reduction target. In order to reach the statewide GHG reduction target of 15%, Merced County must reduce its GHG emissions by 14%. The method of reducing GHG by 14% is to reduce VMT by 14% as well.

VMT is simply the product of a number of trips and those trips' lengths. The first step in a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The MCAG Guidelines for the City of Los Banos provide that the Merced County average VMT per Capita (appropriate for residential land uses), Employee (appropriate for office/commercial non-retail/other land uses) and VMT per Service Population (appropriate for service-oriented land uses) are 12.70, 10.22 and 24.96, respectively. The City's threshold targets a 14% reduction in VMT for residential, office/commercial non-retail, service-oriented and other land uses.

The City's adopted thresholds for development projects correspond to the regional averages modeled by MCAG's model. For residential and non-residential (except retail) development projects, the adopted threshold of significance is a 14% reduction. This means that projects that generate VMT in excess of a 14% reduction from the existing regional VMT per capita or per employee would have a significant environmental impact. Projects that reduce VMT by 14% or more are less than significant. The adopted threshold for retail projects is no net increase in Regional VMT when compared to the existing Regional VMT.

Conclusions

Based on the MCAG guidelines, projects that fall under the description of a local park, daycare center, student housing project, local-serving gas station or K-12 public school are screened out of SB 743-related VMT requirements. As the Project is a public school that serves the local population, it falls under the category of a K-12 public school. Per MCAG VMT Guidelines, K-12 public schools can be presumed to have a less than significant VMT impact and are screened out from a quantitative VMT Analysis. As a result, this Project is screened out from a quantitative VMT analysis and this Report serves as the required VMT Analysis for this Project.

Study Participants

JLB Traffic Engineering, Inc. Personnel

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Engineer I/II
Adrian Benavides	Engineering Aide
Carlos Topete	Engineering Aide

Persons Consulted:

Scott B. Odell, AICP	Odell Planning & Research, Inc.
Sherry Munday	Los Banos Unified School District
Nirorn Than	City of Los Banos
Stacy Souza	City of Los Banos
Brian Guerrero	Merced County

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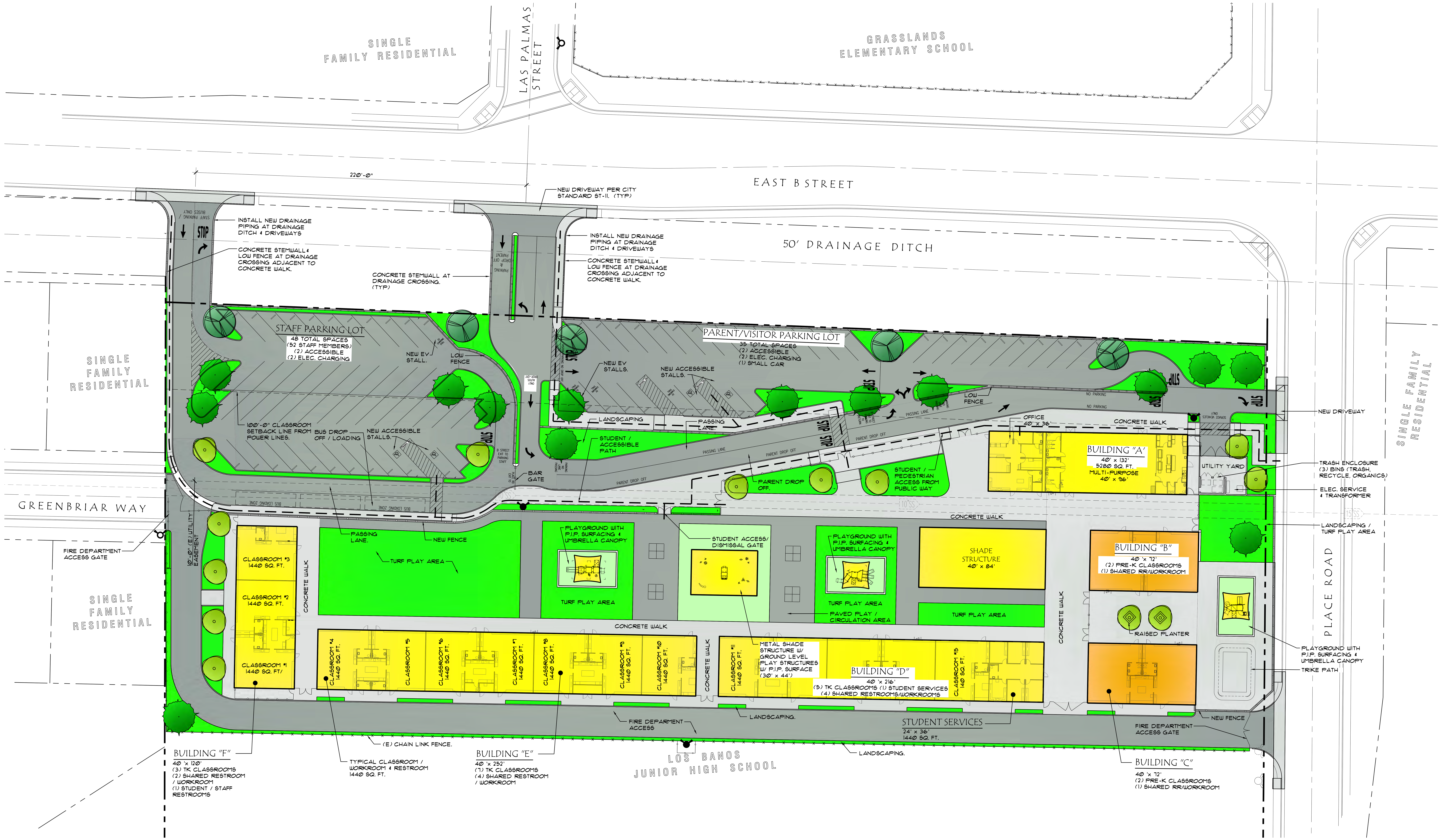
Appendix A: Site Plan



PRELIMINARY SITE PLAN FOR:

EARLY EDUCATION CENTER
LOS BANOS UNIFIED SCHOOL DISTRICT

EAST "B" STREET AND PLACE ROAD
LOS BANOS, CALIFORNIA

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DECEMBER 2023
22M075