APPENDIX A

Air Quality and Greenhouse Gas Emissions Technical Report

Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the De Soto Trunk Line Project City of Los Angeles, California

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Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the De Soto Trunk Line Project

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
μg/m^3	micrograms per cubic meter
2008 RCP	*2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future*
2016 RTP/SCS	2016–2040 Regional Transportation Plan / Sustainable Communities Strategy
AB	Assembly Bill
amsl	above mean sea level
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California's Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resources Board
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Los Angeles
CO	carbon monoxide
CO Protocol	*Transportation Proposed Project-Level Carbon Monoxide Protocol*
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
CTIA	Construction Traffic Impact Assessment
DPM	diesel particulate matter
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERDIP	earthquake resistant ductile iron pipe
First Update	*First Update to the Climate Change Scoping Plan: Building on the Framework*
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HDPE	high-density polyethylene
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
LADWP	Los Angeles Department of Water and Power
LCFS	Low Carbon Fuel Standard
LOS	level of service
LST	localized significance thresholds
MMT	million metric ton
MT CO_2e	metric tons of carbon dioxide equivalent

Acronym/Abbreviation	Definition
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NF_3	nitrogen dioxide
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
proposed project	De Soto Trunk Line Project
RCP	Regional Comprehensive Plan
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
Scoping Plan	*Climate Change Scoping Plan: A Framework for Change*
SCS	Sustainable Communities Strategy
Second Update	2017 Climate Change Scoping Plan
SF_6	sulfur hexafluoride
SLCP	short-lived climate pollutant
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	source-receptor area
TAC	toxic air contaminants
TISA	traffic impact study addendum
VMT	vehicle miles traveled
VOC	volatile organic compound
WSP	welded steel pipe
ZEV	zero emissions vehicle
ZNE	zero net energy

EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed De Soto Trunk Line Project (proposed project) pursuant to the California Environmental Quality Act (CEQA).

Proposed Project Overview

The De Soto Trunk Line Project (proposed project) is a 54- and 48-inch-diameter welded steel pipe (WSP) and earthquake resistant ductile iron pipe (ERDIP) proposed by the Los Angeles Department of Water and Power (LADWP). The project would involve replacing approximately 13,500 feet (2.6 miles) of the existing riveted steel De Soto Trunk Line, a potable water trunk line installed in 1917, and approximately 2,700 feet (0.5 mile) of the existing riveted steel Roscoe Trunk Line, installed in 1917 and 1931 and slip-lined with high-density polyethylene (HDPE) in 1998. The project would also involve approximately 900 feet (0.17 mile) of pipeline replacements at the intersection of De Soto Avenue and Victory Boulevard.

The proposed project site is located within the South Coast Air Basin (SCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Construction and operational criteria air pollutant and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017).

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the proposed project. Impacts were evaluated for their significance based on the SCAQMD mass daily criteria air pollutant thresholds (SCAQMD 1993, as revised in April 2019). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

The proposed project would not result in an increase in the frequency and severity of existing air quality violations and would not conflict with the SCAQMD Consistency Criterion No. 1. Also, implementation of the proposed project would be not exceed the demographic growth forecasts in the Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS); therefore, the proposed project would also be consistent with the SCAQMD 2016 AQMP, which based future emission estimates on the SCAG 2016 RTP/SCS. Thus, the proposed project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the proposed project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment and soil disturbance) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Maximum daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_{X}, CO, SO_{X}, PM_{10}, or $PM_{2.5}$ during construction in all construction years.

Operational Criteria Air Pollutant Emissions

Operational activities would be limited to scheduled maintenance and repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions. Maintenance includes exercising valves and replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities. No permanent workers would be required to operate or maintain the proposed project. As there would be no new operational activities associated with this proposed project, it would have a less than significant impact.

Exposure of Sensitive Receptors

Construction activities would not generate emissions in excess of the SCAQMD site-specific localized significance thresholds (LSTs); therefore, site-specific construction impacts would be less than significant. In addition, diesel equipment would also be subject to the California Air Resources Board (CARB) air toxic control measures for in-use off-road diesel fleets, which would minimize diesel particulate matter (DPM) emissions.

The California Department of Transportation Institute of Transportation Studies *Transportation Proposed Project-Level Carbon Monoxide Protocol* (Caltrans 1997) was followed. The CO hotspots analysis showed that emissions at affected intersections would not exceed the California Ambient Air

Quality Standards for either the 1-hour or 8-hour standard. As such, potential proposed project-generated impacts associated with CO hotspots would be less than significant.

Odors

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, and asphalt pavement application, which would disperse rapidly from the proposed project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The proposed project would not generate any new odors during operation; therefore, impacts during operation would be less than significant.

Cumulative Impacts

The potential for the proposed project to result in a cumulatively considerable impact, per the SCAQMD guidance and thresholds, is based on the proposed project's potential to exceed the proposed project-specific daily thresholds. As discussed previously, proposed project-generated maximum construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ and the proposed project would not generate routine operational activities or associated emissions. Therefore, the proposed project would not result in a cumulatively considerable increase in criteria air pollutants and would have a less than significant cumulative impact.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact but must also be evaluated on a proposed project-level under CEQA. A proposed project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. GHGs are gases that absorb infrared radiation in the atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential (GWP) factors for CH_4 and N_2O.

Proposed Project-Generated Construction and Operational Greenhouse Gas Emissions

The threshold applied to assess the potential for the proposed project to generate GHG emissions either directly or indirectly that may have a significant impact on the environment was the recommended SCAQMD threshold of 3,000 MT CO_2e per year because of the proposed project's components. Pursuant to SCAQMD recommendation, construction emissions were amortized over a 30-year proposed project lifetime, so that construction GHG emissions will compare to the operational threshold (SCAQMD 2008).[1]

Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total proposed project-generated GHG emissions during construction were estimated to be 4,862 MT CO_2e over the construction period. Estimated proposed project-generated construction emissions amortized over 30 years would be approximately 162 MT CO_2e per year. As there are no operational GHG emissions for the proposed project and the amortized construction GHG emissions do not exceed the 3,000 MT CO_2e per year, the proposed project-generated GHG emissions would result in a less than significant impact.

Consistency with Applicable Greenhouse Gas Reduction Plans

The proposed project was assessed for consistency with the Sustainable City Plan, the SCAG 2016/RTP/SCS, CARB's updated scoping plan, and Executive Order S-3-05. The proposed project was shown to be consistent with all the GHG plans previously mentioned. To the extent these regulations are applicable to the proposed project and its uses, the proposed project would comply with all applicable regulations adopted in furtherance of the scoping plan to the extent required by law. As such, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

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[1] While the life of the replacement pipeline is anticipated to be 100 years, and replacement valves are anticipated to have an operational life of 50 years, a project lifetime of 30 years was conservatively assumed consistent with the SCAQMD typical lifetime assumption for projects (SCAQMD 2008).

Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the De Soto Trunk Line Project

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed De Soto Trunk Line Project (proposed project). This assessment uses the significance thresholds in Appendix G of the 2018 California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and is based on the emissions-based significance thresholds recommended by the South Coast Air Quality Management District (SCAQMD) and other applicable thresholds of significance.

This introductory section provides a description of the proposed project and the proposed project location. Section 2, Air Quality, describes the air quality-related environmental setting, regulatory setting, existing air quality conditions, thresholds of significance, and analysis methodology, and presents an air quality impact analysis per Appendix G of the 2018 CEQA Guidelines. Section 3, Greenhouse Gas Emissions, follows the same format as Section 2 and similarly describes the GHG emissions-related environmental setting, regulatory setting, existing climate changes conditions, thresholds of significance, and analysis methodology, and presents a GHG emissions impact analysis per Appendix G of the 2018 CEQA Guidelines. Section 4, References Cited, includes a list of the references cited. Section 5, List of Preparers, includes a list of those who prepared this technical report.

The analysis in this technical report incorporates proposed project data as provided by LADWP and the Construction Traffic Impact Assessment (CTIA) prepared by Dudek (Dudek 2019).

1.2 Regional and Local Setting

At its northern extent, the project alignment begins at the intersection of De Soto Avenue and Devonshire Street, extending 2,700 feet (0.5 mile) along Devonshire Street before turning south onto Mason Avenue. The alignment then extends approximately 13,500 feet (2.6 miles) south along Mason Avenue, until it reaches Roscoe Boulevard. At the Mason Avenue/Roscoe Boulevard intersection, the alignment turns to the west, extending approximately 2,700 feet (0.5 mile) along Roscoe Boulevard before terminating at De Soto Avenue (see Figure 1). The project also includes some pipeline work at the intersection of De Soto Avenue and Victory Boulevard, which is located approximately 2 miles south of the De Soto Avenue/Roscoe Boulevard intersection. Collectively, the areas where new pipelines are proposed will be termed “project alignment” in this report. The project would also involve pipeline abandonment along De Soto Avenue (from Devonshire Street to Roscoe Boulevard), along Roscoe Boulevard (from Mason Avenue to De Soto Avenue), and at the De Soto Avenue/Victory Boulevard intersection. Pipeline abandonment would involve filling the old pipe with cement slurry. This would require construction activity at the tie-in locations (i.e., the intersections of De Soto Avenue/Devonshire Street, De Soto Avenue/Roscoe Boulevard, Mason Avenue/Roscoe Boulevard, and De Soto Avenue/Victory Boulevard).

There is also a potential construction staging area located at the De Soto Reservoir property, which is owned by LADWP and is currently used for water storage purposes. This area will be referred to as the "potential staging area" and is located approximately 1 mile north of the project alignment's northern extent. The project alignment and the potential staging area together will be called the "project site" for the purpose of this report.

The project is located in the City of Los Angeles (City) and County of Los Angeles. The proposed project alignment is primarily located in the Chatsworth–Porter Ranch Community Plan Area. Roscoe Boulevard is located at the boundary between the Chatsworth–Porter Ranch Community Plan Area and the Canoga Park–Winnetka–Woodland Hills–West Hills Community Plan Area. As such, the southern half of Roscoe Boulevard and the properties on the south side of the roadway, as well as the De Soto Avenue/Victory Boulevard intersection, are within the Canoga Park–Winnetka–Woodland Hills–West Hills Community Plan Area. The potential staging area is within the Chatsworth–Porter Ranch Community Plan Area.

Major freeways in the proposed project vicinity include State Route 118, which extends east to west across the northern portion of the San Fernando Valley and is located approximately 1.1 miles north of the proposed project's northern terminus. Additionally, U.S. Route 101 is located approximately 1.4 mile south of the De Soto Avenue/Victory Boulevard intersection.

The proposed project site is located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

1.3 Proposed Project Description

The De Soto Trunk Line Project (proposed project) is a 54- and 48-inch-diameter WSP and ERDIP potable water pipeline proposed by LADWP. The project would involve replacing approximately 13,500 feet (2.6 miles) of the existing riveted steel De Soto Trunk Line, which was installed in 1917, and approximately 2,700 feet (0.5 mile) of the existing riveted steel Roscoe Trunk Line, installed in 1917 and 1931 and slip-lined with HDPE in 1998. The project would also involve approximately 900 feet (0.17 mile) of pipeline replacements at the intersection of De Soto Avenue and Victory Boulevard. (At this intersection, sections of the De Soto, Canoga Topham, and Ventura trunk lines would be replaced.)

The existing trunk lines, which vary in size from 24 inches to 54 inches in diameter, are located in the western portion of the San Fernando Valley within the City of Los Angeles (City). The De Soto Trunk Line spans north to south along De Soto Avenue from the De Soto Reservoir (northern terminus) to Victory Boulevard (southern terminus). The Roscoe Trunk Line spans east to west from Louise Avenue (eastern terminus) to Fallbrook Avenue (western terminus); however, the portion of the trunk line west of De Soto Avenue is currently out of service. The Canoga Topham Trunk Line spans east to west on Victory Boulevard from De Soto Avenue (western terminus) to Canoga Avenue, and then continues north to south on Canoga Avenue from Victory Boulevard to Ventura Boulevard. The Ventura Trunk Line spans west to east on Victory Boulevard from De Soto Avenue (eastern terminus) to Tampa Avenue, and then continues on Tampa Avenue from Victory Boulevard to Ventura Boulevard. The proposed limits of the existing De Soto Trunk Line to be abandoned extend along De Soto Avenue from Devonshire Street to Roscoe Boulevard. The proposed limits of the existing Roscoe Trunk Line to be abandoned extend along Roscoe Boulevard from De Soto Avenue to Mason Avenue. Portions of several trunk lines would also be abandoned at the De Soto Avenue/Victory Boulevard intersection. The portions of the existing trunk lines that are proposed for replacement are aging, deteriorating, and nearing the end of their service life. As such, LADWP is proposing to replace these segments with new pipeline. The segments of the De Soto Trunk Line that would be replaced are 36 inches, 39 inches, 42 inches, 45 inches, 52 inches, and 54 inches in diameter. The segment of the Roscoe Trunk Line that would be replaced is 34 inches in diameter. (Upon replacement, the new section of pipeline along Roscoe Boulevard would be considered part of the De Soto Trunk Line.) The segment of the Canoga Topham Trunk Line that would be replaced is 36 inches in diameter; and the segments of the Ventura Trunk Line that would be replaced are 18 inches and 24 inches in diameter. These segments would be replaced with 54-inch-diameter WSP and ERDIP (for the De Soto Trunk Line), 48-inch-diameter WSP and ERDIP (for the Roscoe Trunk Line), and 36-inch-diameter WSP (for the trunk line replacements at the Victory Boulevard/De Soto Avenue intersection). These proposed replacements would increase the safety, capacity, and reliability of LADWP's water system in the western San Fernando Valley. The proposed project would also include installation of maintenance/access holes, isolation valves, blow-offs, air/vacuum valves, and flowmeters that are required for the operation, monitoring, and maintenance of the trunk lines.

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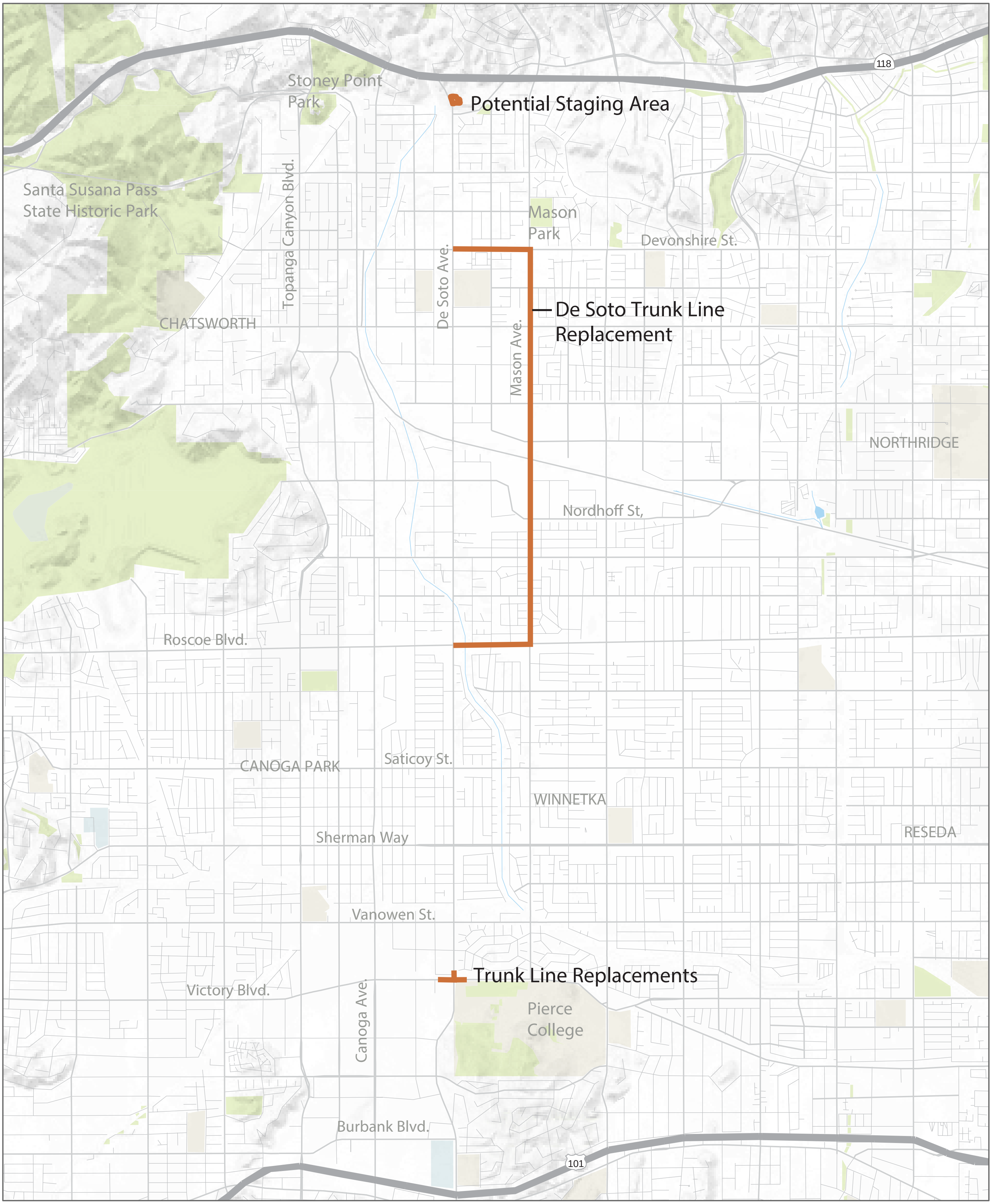

SOURCE: OpenStreetMap

LA DWP Los Angeles Department of Water & Power

FIGURE 1

Project Location

De Soto Trunk Line Project

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2 AIR QUALITY

2.1 Environmental Setting

As stated previously, the proposed project site is located within the SCAB. The SCAB is a 6,745-square-mile area with a Mediterranean climate, bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

2.1.1 Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. The SCAB's air pollution problems are a consequence of the combination of emissions from the nation's second largest urban area, meteorological conditions adverse to the dispersion of those emissions, and mountainous terrain surrounding the SCAB that traps pollutants as they are pushed inland with the sea breeze (SCAQMD 2017). Meteorological and topographical factors that affect air quality in the SCAB are described subsequently.[2]

Climate

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semi-permanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) and of manufactured influences (e.g., development patterns and lifestyle). Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into

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[2] The discussion of meteorological and topographical conditions of the SCAB is based on information provided in the *Final 2016 Air Quality Management Plan* (SCAQMD 2017).

the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

The City's climate is characterized by relatively low rainfall, with warm summers and mild winters. Average temperatures range from a high of 95°F in August to a low of 38°F in December. Annual precipitation averages about 16.9 inches, falling mostly from October through April (WRCC 2017).

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen (NO_x)[3]) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter ($PM_{2.5}$, particles less than 2.5 microns in diameter). In the SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion—a layer of warm, dry air overlaying cool, moist marine air—is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level (amsl), the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes.

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[3] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen.

At a height of 1,200 feet amsl, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet amsl, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within the SCAB, the City is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Concentrations of elevated particles less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ can occur in the SCAB throughout the year but occur most frequently in fall and winter. Although there are some changes in emissions by day-of-week and season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

2.1.2 Pollutants and Effects

2.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[4] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

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[4] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (EPA 2016a) and the CARB Glossary of Air Pollutant Terms (CARB 2016a).

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone).[5] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016b).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants,

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[5] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the proposed project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. PM_{10} tends to collect in the upper portion of the respiratory system, whereas $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.1.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification to the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair) and, thus, is a subset of $PM_{2.5}$ (CARB 2016a). 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 (CARB 2016a). The CARB classified “particulate emissions from diesel-fueled engines” (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person’s reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

2.1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the north, east, and west of the proposed project. The closest on-site sensitive receptors to the proposed project site would be residents located close to the alignment. The closest residence is as close as 20 feet from the alignment.

2.2 Regulatory Setting

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1 hour and 24 hours), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1
Ambient Air Quality Standards

		California Standards[a]	**National Standards**[b]	
Pollutant	**Averaging Time**	*Concentration*[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 $\mu g/m^3$)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 $\mu g/m^3$)	0.070 ppm (137 $\mu g/m^3$)[f]	
NO_2[g]	1 hour	0.18 ppm (339 $\mu g/m^3$)	0.100 ppm (188 $\mu g/m^3$)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2[h]	1 hour	0.25 ppm (655 $\mu g/m^3$)	0.075 ppm (196 $\mu g/m^3$)	—
	3 hours	—	—	0.5 ppm (1,300 $\mu g/m^3$)
	24 hours	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	20 $\mu g/m^3$	—	
$PM_{2.5}$[i]	24 hours	—	35 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	12 $\mu g/m^3$	12.0 $\mu g/m^3$	15.0 $\mu g/m^3$
Lead[j,k]	30-Day Average	1.5 $\mu g/m^3$	—	—
	Calendar Quarter	—	1.5 $\mu g/m^3$ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 $\mu g/m^3$	

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m^3)	—	—
Sulfates	24 hours	25 µg/m^3	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016a.

Notes: µg/m^3 = micrograms per cubic meter; mg/m^3= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1 hour and 24 hours), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24 hours and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and non-carcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification to the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge, from any source whatsoever, quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.2.3 Local Regulations

2.2.3.1 South Coast Air Quality Management District

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recent is the 2016 AQMP (SCAQMD 2017), adopted by the SCAQMD governing board on March 3, 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this 2016 AQMP with broad support from a wide range of stakeholders.

Applicable Rules

Emissions that would result from construction of the proposed project are subject to the rules and regulations of the SCAQMD. The SCAQMD rules applicable to the proposed project may include the following:

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.

- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1166 – Volatile Organic Compound Emissions for Decontamination of Soil:** This rule requires that an approved mitigation plan be obtained from SCAQMD prior to commencing any excavation or grading of soil containing VOC material including gasoline, diesel, crude oil, lubricant, waste oil, adhesive paint, stain, solvent, resin, monomer, and/or any other material containing VOCs.

2.2.3.2 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization (MPO) for the Southern California region and is the largest MPO in the United States.

With respect to air quality planning and other regional issues, SCAG has prepared the *2008 Regional Comprehensive Plan (RCP): Helping Communities Achieve a Sustainable Future* (2008 RCP) for the region (SCAG 2008). The 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAMQD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which is assessed in Section 3. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS) (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15–12 have been met (SCAG 2016). The SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS.

2.2.3.3 City of Los Angeles

Policies pertaining to improving air quality are addressed in the air quality element of the general plan. Polices with air quality associated are presented as follows (City of Los Angeles 1992).

Policy 1.1.1: Encourage demonstration projects that involve creative and innovative uses of market incentive mechanisms to achieve air quality objectives.

Policy 1.2.1: Implement the air quality element policies set forth in this chapter through adoption of the Clean Air Program, which shall be amended as Council sees necessary without general plan amendment.

Policy 1.2.2: Pursue the City's air quality objectives in cooperation with regional and other local jurisdictions.

Policy 1.2.3: Monitor and assess the progress of the City's air quality improvement programs.

Policy 1.3.1: Minimize particulate emissions from construction sites.

Policy 1.3.2: Minimize particulate emissions from unpaved roads and parking lots that are associated with vehicular traffic.

Policy 2.1.1: Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities to reduce vehicle trips and/or vehicle miles traveled (VMT) as an employer, and encourage the private sector to do the same to reduce work trips and traffic congestion.

Policy 2.1.2: Facilitate and encourage the use of telecommunications (i.e., telecommuting), in both the public and private sectors, to reduce work trips.

Policy 2.2.1: Discourage single-occupant vehicle use through a variety of measures such as market incentive strategies, mode-shift incentives, trip reduction plans, and ridesharing subsidies.

Policy 2.2.2: Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management policies.

Policy 2.2.3: Minimize the use of single-occupant vehicles associated with special events or in areas and times of high levels of pedestrian activities.

Policy 3.1.1: Implement programs to finance and improve public transit facilities and service.

Policy 3.1.2: Address public safety concerns as part of transit improvement programs such as guarded and/or well lit transit facilities, emergency equipment and safe-driving training for operators, in order to increase transit ridership.

Policy 3.1.3: Cooperate with regional transportation agencies in expediting the development and implementation of regional transit systems.

Policy 3.2.1: Manage traffic congestion during peak hours.

Policy 3.3.1: Implement the best available system management techniques, and transportation management and mobility action plans to improve the efficiency of existing transportation facilities, subject to availability of funding.

Policy 4.1.1: Coordinate with all appropriate regional agencies the implementation of strategies for the integration of land use, transportation, and air quality policies.

Policy 4.1.2: Ensure that project level review and approval of land use development remain at the local level.

Policy 4.2.1: Revise the City's General Plan/Community Plans to achieve a more compact, efficient urban form and to promote more transit-oriented development and mixed-use development.

Policy 4.2.2: Improve accessibility for the City's residents to places of employment, shopping centers, and other establishments.

Policy 4.2.3: Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

Policy 4.2.4: Require that air quality impacts be a consideration in the review and approval of all discretionary projects.

Policy 4.2.5: Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.

Policy 4.3.1: Revise the City's general plan / community plans to ensure that new or relocated sensitive receptors are located to minimize significant health risks posed by air pollution sources.

Policy 4.3.2: Revise the City's general plan / community plans to ensure that new or relocation major air pollution sources are located to minimize significant health risks to sensitive receptors.

Policy 5.1.1: Make improvements in harbor and airport operations and facilities to reduce air emissions.

Policy 5.1.2: Effect a reduction in energy consumption and shift to non-polluting sources of energy in its buildings and operations.

Policy 5.1.3: Have the Department of Water and Power make improvements at its in-basin power plants to reduce air emissions.

Policy 5.1.4: Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.

Policy 5.2.1: Reduce emissions from its own vehicles by continuing scheduled maintenance, inspection and vehicle replacement programs; by adhering to the State of California's emission testing and monitoring programs; by using alternative fuel powered vehicles wherever feasible, in accordance with regulatory agencies and City Council policies.

Policy 5.3.1: Support the development and use of equipment powered by electric or low-emitting vehicles.

Policy 6.1.1: Raise awareness through public information and education programs of the actions that individuals can take to reduce air emissions.

Many air quality strategies result in co-benefits with reducing GHG emissions. See Section 3.2.3.3, City of Los Angeles, for a discussion of the City's GHG emission reduction policies.

2.3 Regional and Local Air Quality Conditions

2.3.1 South Coast Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the proposed project site with respect to the NAAQS and CAAQS. The attainment classifications for the criteria pollutants are outlined in Table 2.

Table 2
South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour	No federal standard	**Nonattainment**
O_3 – 8 hours	**Extreme nonattainment**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Attainment/maintenance	Attainment
Sulfur dioxide (SO_2)	Attainment	Attainment
Coarse particulate matter (PM_{10})	Attainment/maintenance	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	**Serious nonattainment**	**Nonattainment**
Lead	Nonattainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment

Table 2
South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2016c (federal); CARB 2016b (state).
Notes: Attainment = meets the standards; Attainment/maintenance = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (EPA 2016c; CARB 2016b).

Despite the current non-attainment status, air quality within the SCAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the SCAQMD. This trend toward cleaner air has occurred in spite of continued population growth. Despite this growth, air quality has improved significantly over the years, primarily due to the impacts of the region's air quality control program. PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999 (SCAQMD 2013). Similar improvements are observed with O_3, although the rate of O_3 decline has slowed in recent years.

2.3.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The SCAQMD monitors local ambient air quality at the proposed project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2016 to 2018 are presented in Table 3. The Reseda monitoring station, located at 18330 Gault Street, Reseda, California, is the nearest air quality monitoring station to the proposed project site, located approximately 3.5 miles southeast of the proposed project site. The data collected at this station are considered representative of the air quality experienced in the proposed project vicinity. Air quality data for O_3, CO, NO_2, and $PM_{2.5}$ from the Reseda monitoring station are provided in Table 3. Because SO_2 and PM_{10} measurements are not monitored at the Reseda monitoring station, the measurements were taken from the Main Street monitoring station (1630 North Main Street, Los Angeles, California, approximately 23 miles southeast of the proposed project site). The number of days exceeding the ambient air quality standards is also shown in Table 3.

Table 3
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O_3)										
Reseda	ppm	Maximum 1-hour concentration	State	0.09	0.122	0.140	0.120	9	26	14
	ppm	Maximum 8-hour concentration	State	0.070	0.099	0.115	0.101	23	67	50
			Federal	0.070	0.098	0.114	0.101	23	64	49
Nitrogen Dioxide (NO_2)										
Reseda	ppm	Maximum 1-hour concentration	State	0.18	0.055	0.062	0.057	0	0	0
			Federal	0.100	0.056	0.063	0.057	0	0	0
	ppm	Annual concentration	State	0.030	0.012	0.012	0.012	0	0	0
			Federal	0.053	0.012	0.012	0.012	0	0	0
Carbon Monoxide (CO)										
Reseda	ppm	Maximum 1-hour concentration	State	20	2.4	3.0	3.4	0	0	0
			Federal	35	2.4	3.0	3.4	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	1.9	2.5	2.1	0	0	0
			Federal	9	1.9	2.5	2.1	0	0	0
Sulfur Dioxide (SO_2)										
Los Angeles	ppm	Maximum 1-hour concentration	Federal	0.075	0.013	0.006	0.018	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.001	0.002	0.001	0	0	0
	ppm	Annual concentration	Federal	0.030	0.000	0.000	0.000	0	0	0
Coarse Particulate Matter (PM_{10})[b]										
Los Angeles	$\mu g/m^3$	Maximum 24-hour concentration	State	50	74.6	96.2	81.2	21	40	31
			Federal	150	64.0	64.6	68.2	0	0	0
	$\mu g/m^3$	Annual concentration	State	20	25.8	25.7	34.0	ND	ND	ND

Table 3
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Fine Particulate Matter ($PM_{2.5}$)[b]										
Reseda	μg/m^3	Maximum 24-hour concentration	Federal	35	30.0	35.2	38.9	0	0	1
	μg/m^3	Annual concentration	State	12	16.9	16.8	15.8	ND	ND	ND
			Federal	12.0	9.1	9.7	—	ND	ND	—

Sources: CARB 2019; EPA 2019a.

Notes: — = not available; μg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

Reseda Monitoring Station is located at 18330 Gault Street, Reseda, California 91335.

Los Angeles Main Street Monitoring Station is located 1630 North Main Street, Los Angeles, California, 90012.

[a] Mean does not satisfy minimum data completeness criteria.

[b] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.4 Significance Criteria and Methodology

2.4.1 Thresholds of Significance

Appendix G of the California Environmental Quality Act (CEQA) guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development proposed project may result in significant impacts. [6] Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on air quality if the proposed project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

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[6] Revisions to the CEQA Guidelines were adopted on December 28, 2018. However, this technical report supports a recirculated CEQA document. The previous CEQA document analyzed a different design for the project and was released for public review before the adoption of the revised CEQA Guidelines. As such, this analysis uses the version of the CEQA Guidelines and Appendix G that was in place when the previous CEQA document was released for public review.

3. 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 (including releasing emissions which exceed quantitative thresholds for O_3 precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the proposed project would have a significant impact on air quality. The SCAQMD *CEQA Quality Handbook*, as revised in April 2019 (SCAQMD 2019), sets forth quantitative emissions thresholds below which a proposed project would not have a significant impact on ambient air quality. Proposed project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4, SCAQMD Air Quality Significance Thresholds, are exceeded.

A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3 (see Table 1), which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x threshold shown in Table 4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see the discussion of O_3 and its sources in Section 2), and the effects of an individual project's emissions of O_3 precursors on levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 4
South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

Table 4
South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
NO_2 1-hour average	0.18 ppm (state)	
NO_2 annual arithmetic mean	0.030 ppm (state) and 0.0534 ppm (federal)	
	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
CO 1-hour average	20 ppm (state) and 35 ppm (federal)	
CO 8-hour average	9.0 ppm (state/federal)	
PM_{10} 24-hour average	10.4 µg/m^3 (construction)[d]	
	2.5 µg/m^3 (operation)	
PM_{10} annual average	1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction)[d]	
	2.5 µg/m^3 (operation)	
SO_2 1-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
SO_2 24-hour average	0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
Lead 30-day average	1.5 µg/m^3 (state)	
Lead rolling 3-month average	0.15 µg/m^3 (federal)	

Source: SCAQMD 2019.

Notes: SCAQMD = South Coast Air Quality Management District; VOCs = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

GHG emissions thresholds were not include included in Table 4 as they are addressed in Section 3 of this report.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

[b] TACs include carcinogens and non-carcinogens.

[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.

[d] Ambient air quality threshold are based on SCAQMD Rule 403.

The evaluation of whether the project would conflict with or obstruct implementation of the applicable air quality plan (Impact AQ-1) is based on the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993), Chapter 12, Sections 12.2 and 12.3. The first criterion assesses if the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP, which is addressed in detail under Impact AQ-2 in Section 2.5.2. The second criterion is if the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase, as discussed further in Section 2.5.1.

To evaluate the potential for the project to violate any air quality standard or contribute substantially to an existing or projected air quality violation (Impact AQ-2), this analysis applies the SCAQMD's construction and operational criteria pollutants mass daily thresholds, as shown in Table 4. A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly (see the discussion of O_3 and its sources in Section 2.1.2 Pollutants and Effects), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

In addition to the emission-based thresholds listed in Table 4, SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the proposed project as a result of construction activities. Such an evaluation is referred to as a localized significance threshold (LST) analysis. For project sites of 5 acres or less, the *Localized Significance Threshold Methodology* (SCAQMD 2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2 and CO, PM_{10} and $PM_{2.5}$) without performing dispersion modeling. The proposed project site is approximately 8.4 acres. However, the project would be completed over a 7-year period. As such, the project is expected to disturb less than 1 acre per day; therefore, the thresholds in the LST lookup tables are appropriate for this analysis.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a proposed project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area (SRA) in which the proposed project is located

- Size of the proposed project site
- Distance between the proposed project site and the nearest sensitive receptor (e.g., residences, schools, and hospitals)

The proposed project site is located in SRA 6 (West San Fernando Valley). The SCAQMD provides guidance for applying California Emissions Estimator Model (CalEEMod) to the LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. The proposed project would disturb a total of 8.4 acres, but would disturb less than 1-acre per day. Therefore, using the LSTs for a 1-acre site would be more conservative than using the 2-acre or 5-acre site.

The nearest sensitive-receptor land use (the existing residents) are located as close as 20 feet from the proposed construction activities. As such, the LST receptor distance was assumed to be 82 feet (25 meters), which is the shortest distance provided by the SCAQMD lookup tables. The LST values from the SCAQMD lookup tables for SRA 6 (West San Fernando Valley) for a 1-acre project site and a receptor distance of 25 meters are shown in Table 5.

Table 5
Localized Significance Thresholds for Source-Receptor Area 6 (West San Fernando Valley)

Pollutant	Threshold (pounds per day)
NO_2	103
CO	426
PM_{10}	4
$PM_{2.5}$	3

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
LST thresholds were determined based on the values for 1-acre site at a distance of 25 meters from the nearest sensitive receptor.

2.4.2 Approach and Methodology

2.4.2.1 Construction

Emissions from the construction phase of the proposed project were estimated using CalEEMod Version 2016.3.2. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the proposed project applicant and CalEEMod default values when proposed project specifics were not known.

For purposes of estimating proposed project emissions, and based on information provided by LADWP, it is assumed that construction of the proposed project would commence in October 2023 and would last approximately 63 months, ending in December 2028. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Mobilization and Open Trench Pipe Installation: 55 months (October 2023–April 2028)
- Pipe Jacking and Commissioning: 37 months (December 2025–December 2028)

Open-Trench Excavation

Open-trench excavation is a construction method typically used to install pipelines and their appurtenances. In general, the process consists of site preparation, excavation and shoring, pipe installation and backfilling, and work site restoration. Construction would occur within the public right of way, within an approximately 1,000-foot-long work area. Two-way travel along the affected roadways would be maintained throughout construction. Construction would primarily occur on the east or west side of the street. The maximum length of open trench at any one time would be approximately 100 feet. The trenches would be barricaded along the perimeter with chain linked fences and concrete traffic barriers to prevent vehicles and pedestrians from entering the work area. During the open-trench construction processes, approximately 120 cubic yards of excavated material are expected to be removed and hauled off per day.

Site Preparation. Traffic control plans would be prepared in coordination with the City of Los Angeles Department of Transportation to delineate traffic lanes around work areas. The existing pavement along the trunk line alignment would be cut with a concrete/asphalt saw cutter and then removed using equipment such as jackhammers, pavement breakers, excavators, and/or loaders. The pavement would be removed from the proposed project site and recycled, reused as backfill material, reused as pavement base material, or transported to an appropriate facility for recycling or disposal.

Excavation and Shoring. A trench would be excavated along the alignment using backhoes, excavators, or other types of excavation equipment. Portions of the trench adjacent to utilities may be manually excavated. Excavated soil would be reused as backfill material or hauled off site. A typical trench would be 11.5 feet wide and 10 feet deep. Where perpendicular substructures must be avoided, trenches may be excavated deeper or shallower, as necessary. As previously noted, the work area required for trenching would be approximately 1,000 feet long per work area; however, only 100 feet of trench would be left open at any one time. As the trench/pit is excavated, the walls are typically supported, or shored, with hydraulic jacks or trench boxes.

Pipe Installation and Backfilling. Once the trench has been excavated and shored, pipe laying would commence. Bedding material (crushed rock, sand, or slurry) would be placed and compacted at the bottom of the trench. Pipe segments would then be lowered into the trench and placed on the bedding. The segments would be welded or mechanically connected to one another at the joints. Approximately 18 linear feet of pipe would be installed per day by each construction crew. Assuming two crews would be working at the same time, an average of 36 linear feet of pipe would be installed per day. Prior to backfilling, appurtenant structures would be installed as necessitated by design. After laying the pipe, the trench would be backfilled with crushed aggregate base, crushed miscellaneous base, slurry, or previously excavated materials from the work area.

Work Site Restoration. Any portion of the roadway damaged as a result of construction activities would be repaved and restored in accordance with all applicable City of Los Angeles Department of Public Works standards. Once the pavement has been restored, traffic delineation (restriping) would also be restored.

Pipe Jacking

Pipe jacking, which is a form of tunneling, would be used to reduce traffic disruptions at busy intersections and to extend underneath features along the alignment that are not suitable for open-trench construction. Pipe jacking would be used at the following intersections and crossings to reduce traffic effects and to avoid areas where open trenching would not be feasible.

- Devonshire Street and Mason Avenue
- Lassen Street and Mason Avenue
- Union Pacific Railroad tracks and Mason Avenue
- Nordhoff Street and Mason Avenue
- Browns Creek Channel crossing at Roscoe Boulevard
- De Soto Avenue and Victory Boulevard (2 jacking locations)

The installation of pipelines using pipe jacking avoids the continuous surface disruption that is required for open trench construction. However, some surface disruption would still occur, since “jacking” and “receiving” pits are used and would be excavated along the proposed project alignment. Pipe jacking involves a horizontal auger boring machine that is advanced in a tunnel bore to remove material ahead of or inside the jacking pipe. Powerful hydraulic jacks are used to push a steel jacking pipe from a launch (bore) pit to a receiving pit. As the tunneling machine is driven forward, a jacking pipe is added into the pipe string. During the pipe jacking process, approximately 40 cubic yards of excavated materials are expected to be removed and hauled off per day. The following is a description of the phases of construction for pipe jacking.

Site Preparation. Traffic control plans would be prepared in coordination with the City of Los Angeles Department of Transportation to delineate traffic lanes around work areas and to address any turn lane pockets affected by the proposed project at major intersections. In preparation of excavating the jacking and receiving pits, the pavement would first be cut using a concrete/asphalt saw cutter or pavement breaker. As with open-trench excavation, the pavement would be removed from the project site and recycled, reused as a backfill material, reused as pavement base materials, or transported to an appropriate facility for recycling or disposal.

Excavation and Shoring. A jacking pit and a receiving pit are generally used for each jacking location, one at each end of the pipe segment. The distance between the pits typically ranges from 250 feet to 1,000 feet, but may be longer or shorter depending on soil or other site conditions.

Jacking pits would be approximately 20 feet wide, 42 feet long, and 35 feet deep. Receiving pits would be approximately 15 feet wide, 40 feet long, and 35 feet deep. The pits would be excavated with backhoes and other excavation equipment. The excavated soil would be hauled to an off-site disposal facility or reused as backfill material. As excavation occurs, the pits would be shored using a beam and plate shoring system.

Pipe Installation. Once the pits are constructed and shored, a horizontal hydraulic jack would be placed at the bottom of the jacking pit. A steel casing would be lowered into the pit with a crane and placed on the jack. (For pipe jacking along Mason Avenue, the steel casing would measure 72 inches on its inner diameter; for pipe jacking along Roscoe Boulevard, the steel casing would measure 66 inches on its inner diameter; for pipe jacking at the intersection of Victory Boulevard and De Soto Avenue, the steel casing would measure 54 inches on its inner diameter.) A simple cutting shield would be placed in front of the pipe segment to cut through the soil. As the jack pushes the steel casing and cutting shield into the soil, the soil is removed from within the leading casing with an auger or boring machine, either by hand or on a conveyor. Pipe jacking uses water that is pumped down the drill stem to run the drill head, lubricate the drill pipe, maintain the borehole, and remove bore cuttings. Depending on soil conditions, bentonite would be added to the water to help lubricate the pilot pipe, maintain the stability of the borehole, and keep the hole drilled open. The water and clay would be mixed on site in a mixer attached to or as part of the bore machine. Earth cuttings from the borehole and the water/clay mixture would return to the bore entry pit, where it would be pumped into a receiving tank. Once a casing segment is pushed into the soil, a new segment is lowered, set in place, and welded to the casing that has been pushed. Installation of the steel casing is expected to progress at approximately 40 feet per day. Once the casing has been installed, the carrier pipe would be lowered and placed on the jacks, which push the pipe into the steel casing using casing spacers.

Work Site Restoration. After completion of the pipe installation along the jacking locations, the shoring system would be disassembled as the pits are backfilled, the soil would be compacted, and pavement would be restored. Once the pavement is complete, traffic delineation (restriping) would be restored.

For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for 5 days per week (22 days per month), during proposed project construction. Once the pipelines are installed, there will need to be hydrostatic testing performed and disinfection of the pipelines, which is anticipated to require up to 5 million gallons of water.

Construction-worker estimates and vendor truck trips by construction phase were provided by LADWP. The number of haul truck trips was estimated based on an average truck size of 16 cubic yards. CalEEMod default trip length values were used for the distances for all construction-related trips.

The construction equipment mix and vehicle trips used for estimating the proposed project-generated construction emissions are shown in Table 6.

Table 6
Construction Workers, Vendor Trips, and Equipment Use per Day

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Open-trench pipe installation	40	28	5,100	Excavator	1	8
				Crane	1	5
				Crane	1	6
				Generator	1	8
				Backhoe	1	8
				Front-end loader	1	8
				Welder	1	8
				Paving equipment	1	8
				Saw	1	8
				Plate compactor	1	8
				Roller	1	8
				Forklift	1	8
				Air compressor	1	8

Table 6
Construction Workers, Vendor Trips, and Equipment Use per Day

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Pipe jacking	12	18	1,040	*Construction of Jacking and Receiving Pits*		
				Excavator	1	8
				Crane	1	5
				Crane	1	6
				Generator	1	8
				Backhoe	1	8
				Front-end loader	1	8
				Welder	1	8
				Paving equipment	1	8
				Saw	1	8
				Plate compactor	1	8
				Roller	1	8
				Forklift	1	8
				Air compressor	1	8
				Pipe Installation via Jacking		
				Excavator	1	8
				Tunnel-boring machine (electric)	1	8
				Generator	1	8
				Lubrication pump (electric)	1	8
				High-pressure water pump	1	3
				Crane	1	6

Notes: See Attachment 1 for details.

2.4.2.2 Operation

The proposed replacement pipeline is anticipated to have an operational life of 100 years, and replacement valves are anticipated to have an operational life of 50 years. The entire trunk line would be underground and would not be visible from ground level during operation. Several 6-inch air/vacuum valves would be installed along the sidewalks, spaced at various intervals along the alignment.

Operational activities would be limited to scheduled maintenance and repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions. Maintenance includes exercising valves and replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities. No permanent workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance were not quantified in this analysis as they would not increase over what currently exists.

2.5 Impact Analysis

2.5.1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

As previously discussed, the proposed project site is located within the SCAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the AQMP, currently the 2016 AQMP, in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). The criteria are as follows (SCAQMD 1993):

- **Consistency Criterion No. 1:** The project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Section 2.5.2 of this report evaluates the proposed project’s potential impacts in regards to CEQA Guidelines Appendix G Threshold 2 (the proposed project’s potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation impact analysis). As discussed in Section 2.5.2, the proposed project would not result in an exceedance of SCAQMD thresholds during construction for any criteria air pollutant. Therefore, the proposed project would not result in an increase in the frequency or severity of existing air quality violations and would not conflict with Consistency Criterion No. 1 of the SCAQMD CEQA Air Quality Handbook.

Consistency Criterion No. 2

While striving to achieve the NAAQS for O_3 and $PM_{2.5}$ and the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population and employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook).

The proposed project as a whole would be considered consistent with the existing land use and zoning under the current City General Plan and County of Los Angeles General Plan, which were used to develop the assumptions in the 2016 AQMP. Additionally, the proposed project would not directly or indirectly promote population growth in the region. Therefore, the proposed project would not exceed the assumptions of the 2016 AQMP. Accordingly, the proposed project would meet Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook.

Summary

As described previously, the proposed project would not result in an increase in the frequency and severity of existing air quality violations and would not conflict with Consistency Criterion No. 1. Also, implementation of the proposed project would be not exceed the demographic growth forecasts in the SCAG 2016 RTP/SCS; therefore, the proposed project would also be consistent with the SCAQMD 2016 AQMP, which based future emission estimates on the SCAG 2016 RTP/SCS. Thus, the proposed project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the proposed project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

2.5.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment and soil disturbance) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 2.4.2.1, Construction, criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2023 through 2028). Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by LADWP and are intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available.

Implementation of the proposed project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The proposed project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during the grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day depending on weather conditions. Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$.

Table 7 presents the estimated maximum daily construction emissions generated during construction of the proposed project. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Attachment 1.

Table 7
Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2023	2.59	23.06	24.14	0.06	2.61	1.32
2024	2.44	21.49	23.91	0.06	1.72	1.02
2025	4.52	39.20	47.66	0.11	3.21	1.85
2026	4.51	39.15	47.55	0.11	2.66	1.71
2027	4.50	39.10	47.46	0.11	2.66	1.71
2028	4.87	42.70	52.43	0.12	3.71	2.07
Maximum Daily Emissions	**4.87**	**42.70**	**52.43**	**0.12**	**3.71**	**2.07**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Attachment 1 for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod “mitigated” output, which accounts for compliance with SCAQMD Rule 403 (Fugitive Dust).

As shown in Table 7, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. Construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. As such, impacts related to construction would be less than significant. During construction, if soils are determined to be VOC contaminated (VOC concentrations greater than or equal to 50 ppm), then the requirements set forth in SCAQMD Rule 1166 shall be implemented.

As discussed in Section 2.4.2.2, Operation, the proposed project would not create any new impacts during operation. A general conformity assessment of the proposed project is included in Attachment 2.

2.5.3 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

In considering cumulative impacts from the proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. If a project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality. The basis for analyzing the proposed project's cumulatively considerable contribution is if the proposed project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

As discussed in Section 2.3.1, South Coast Air Basin Attainment Designation, the SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction of the proposed project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. As indicated in Table 7, proposed project-generated construction emissions would not exceed the SCAQMD emission-based significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. The proposed project would not generate an increase in emissions during operation. Because the proposed project's emissions would not exceed the SCAQMD significance thresholds, it would not be expected to have a cumulatively considerable contribution to nonattainment status in the SCAB.

However, cumulative localized impacts could still potentially occur if project construction were to occur concurrently with another off-site project. Construction schedules for potential future projects near the proposed project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be considered speculative.[7] However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation if the proposed project would exceed SCAQMD thresholds. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD.

For the reasons discussed above, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Impacts would be considered less than significant.

2.5.4 Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds Analysis

As discussed in Section 2.1.3, Sensitive Receptors, sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). The proposed project alignment is near residential buildings, as close as 20 feet to construction activities. To provide a conservative analysis the minimum distance (25 meters or 82 feet) provided in the SCAQMD LST look up tables is utilized in this analysis.

An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the proposed project. As indicated in the discussion of the thresholds of significance (Section 2.4, Significance Criteria and Methodology), the SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the proposed project site. The impacts were analyzed using methods consistent with those in the SCAQMD's *Final*

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[7] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). This discussion is nonetheless provided in an effort to show good-faith analysis and comply with CEQA's information disclosure requirements.

Localized Significance Threshold Methodology (2009). According to the *Final Localized Significance Threshold Methodology*, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2009). Hauling of soils and construction materials associated with the proposed project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways. Emissions from the trucks would be relatively brief in nature and would cease once the trucks pass through the main streets.

Construction activities associated with the proposed project would result in temporary sources of on-site fugitive dust and construction equipment emissions. Off-site emissions from vendor trucks, haul trucks, and worker vehicle trips are not included in the LST analysis, for the reasons described above. The maximum allowable daily emissions that would satisfy the SCAQMD localized significance criteria for SRA 6 are presented in Table 8 and compared to the maximum daily on-site construction emissions that would be generated during project construction.

Table 8
Localized Significance Thresholds Analysis for Proposed Project Construction

Maximum On-Site Emissions	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Construction Emissions	41.35	50.52	1.62	1.52
SCAQMD LST	*103*	*426*	*4*	*3*
LST Exceeded?	**No**	**No**	**No**	**No**

Source: SCAQMD 2009.
Notes:
NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Attachment 1 for detailed results.
Localized significance thresholds are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters.
These estimates reflect control of fugitive dust required by Rule 403.

As shown in Table 8, construction activities would not generate emissions in excess of site-specific LSTs; therefore, site-specific impacts during construction of the proposed project would be less than significant. In addition, diesel equipment would also be subject to the CARB air toxic control measures for in-use off-road diesel fleets, which would minimize DPM emissions.

Health Impacts of Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. The following measures are required by state law to reduce diesel particulate emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-Road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks during construction of the proposed project and the associated health impacts to sensitive receptors. The closest sensitive receptors would be residents located along the alignment. As shown in Table 8, maximum daily particulate matter (PM_{10} or $PM_{2.5}$) emissions generated by construction equipment operation and from on-site hauling of soil during grading (exhaust particulate matter, or DPM), combined with fugitive dust generated by equipment operation and vehicle travel, would be well below the SCAQMD significance thresholds. Moreover, construction of the proposed project would last no longer than approximately 1 week in a particular location (for open trench) or 6 months in one location (for pipe jacking), after which the construction activities would move to the next location. The proposed project would also not emit any new TAC emissions during operation. Therefore, the impact would be less than significant.

Health Impacts of Carbon Monoxide

Mobile source impacts occur on two scales of motion. Regionally, proposed project-related travel would add to regional trip generation and increase the VMT within the local airshed and the SCAB. Locally, proposed project generated traffic would be added to the City’s roadway system near the proposed project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles “cold-started” and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the proposed project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The CTIA (Dudek 2019) evaluated whether there would be a decrease in the level of service (LOS) (i.e., increased congestion) at the intersections affected by the proposed project during construction. The potential for CO hotspots was evaluated based on the results of the CTIA. The California Department of Transportation Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol; Caltrans 2010) was followed. For projects located within an area designated as attainment or unclassified under the CAAQS or NAAQS, the CO Protocol identifies screening criteria for consideration. The first screening criteria focuses on projects that are likely to worsen air quality, which would occur if: a) the project significantly increases the percentage of vehicles operating in cold start mode (greater than 2%), b) the project significantly increases traffic volumes (greater than 5%), and/or c) the project worsens traffic flow. In addition to consideration of whether the proposed project would worsen air quality, CO hotspots are typically evaluated when (1) the LOS of an intersection or roadway decreases to LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment.

The proposed project's CTIA evaluated 12 intersections. As determined by the CTIA using the Intersection Capacity Utilization method, the following intersections under the Cumulative Year (2026) would operate at LOS E or worse during the AM and PM peak hours:

- Mason Avenue/Parthenia Street (LOS E in AM)
- De Soto Avenue/Victory Boulevard (LOS E in AM and LOS E in PM)

The screening evaluation presents LOS with project improvements (mitigation), whether the recommended improvements (mitigation measures) are feasible, and whether a quantitative CO hotspots analysis may be required. According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing a screening test as described in this protocol, an additional intersection should be analyzed (Caltrans 2010).

Based on the CO hotspot screening evaluation (Attachment 3), both of the above intersections were evaluated for CO hotspots. The potential impact of the project on local CO levels was assessed at these intersections with the Caltrans CL4 interface based on the California LINE Source

Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a).

The emissions factor represents the weighted average emissions rate of the local South Coast Air Basin vehicle fleet expressed in grams per mile per vehicle. Consistent with the traffic report, emissions factors for 2026 were used for the analysis. Emissions factors for 2026 were predicted by EMFAC2017 based on a 5-mile-per-hour (mph) average speed for all of the intersections for approach and departure segments. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on the traffic report. Modeling assumptions are outlined in Attachment 3.

Four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the future possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur in 2026. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The SCAQMD provides projected future concentrations of CO emissions in order to assist with CO Hotspots Analysis. The projected future 1-hour CO background concentration of 6.6 parts per million for 2020 for the Reseda monitoring station (which is the closest air quality monitoring station to the project area) was assumed in the CALINE4 model for 2020 (SCAQMD 2002a). The maximum CO concentration measured at the Reseda monitoring station over the last 3 years was 3.4 parts per million, which was measured in 2018; as such, the SCAQMD projected 1-hour CO ambient concentration of 6.6 parts per million is conservative assumption. This 8-hour average CO concentration was added to the SCAQMD projected 8-hour CO ambient concentration of 5.5 parts per million for 2020 from the Reseda monitoring station to compare to the CAAQS (SCAQMD 2002b).

The results of the model are shown in Table 9, CALINE4 Predicted Carbon Monoxide Concentrations. Model input and output data are provided in Attachment 3.

Table 9
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact (ppm)	
	1-hour	*8-hour*
Mason Avenue/Parthenia Street (AM)	7.2	5.92
De Soto Avenue/Victory Boulevard (AM)	7.4	6.06

Source: Caltrans 1998a (CALINE4).
Notes: CO = carbon monoxide; ppm = parts per million.

As shown in Table 9, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 7.4 ppm, which is below the 1-hour CO CAAQS of 20 ppm (CARB 2016c). The maximum predicted 8-hour CO concentration of 6.06 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9.0 ppm (CARB 2016c). Neither the 1-hour nor 8-hour CAAQS would be equaled or exceeded at any of the intersections studied. Accordingly, the project would not cause or contribute to violations of the CAAQS, and would not result in exposure of sensitive receptors to localized high concentrations of CO. As such, impacts would be less than significant to sensitive receptors with regard to potential CO hotspots resulting from project contribution to cumulative traffic-related air quality impacts.

Health Impacts of Other Criteria Air Pollutants

Construction of the proposed project would result in emissions that would not exceed the SCAQMD thresholds for criteria air pollutants including VOC, CO, SO_x, NO_x, $PM_{10,}$ or $PM_{2.5}$. VOCs would be associated with motor vehicles and construction equipment; however, proposed project-generated VOC emissions would not result in the exceedances of the SCAQMD thresholds as shown in Table 7.

VOCs and NO_x are precursors to O_3, for which the SCAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SCAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. The potential for exacerbating excessive O_3 concentrations also depends on the time of year that the VOC emissions would occur because exceedances of the O_3 AAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with proposed project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. However, as emissions thresholds were not exceeded for either pollutant, health effects would be considered less than significant.

Construction of the proposed project would also not exceed SCAQMD thresholds for PM_{10} or $PM_{2.5}$. As such, the project would not contribute to exceedances of the NAAQS and CAAQS for particulate matter, nor would it obstruct the SCAB from coming into attainment for these pollutants. The proposed project would also not result in substantial DPM emissions during construction, and therefore, would not result in significant health effects related to DPM exposure. Additionally, the proposed project would be required to comply with SCAQMD Rule 403, which limits the amount of fugitive dust generated during construction. Due to the minimal contribution of particulate matter during construction, health impacts would be considered less than significant.

Construction of the proposed project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. Health impacts that result from NO_2 and NO_x include respiratory irritation, which could be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, proposed project construction would be relatively short term, and off-road construction equipment would be operating at various portions of the alignment and would not be concentrated in one portion of the site at any one time. In addition, existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Construction of the proposed project would not require use of any stationary sources that would create substantial, localized NO_x impacts. Therefore, potential health impacts associated with NO_2 and NO_x would be considered less than significant.

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots were discussed previously and are determined to be a less-than-significant impact. Thus, the proposed project's CO emissions would not contribute to significant health effects associated with this pollutant. In summary, construction of the proposed project would not result in exceedances of the SCAQMD significance thresholds for all criteria pollutants. Therefore, the potential health impacts associated with criteria air pollutants are considered less than significant.

2.5.5 Would the project create objectionable odors affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors would disperse rapidly from the proposed project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project would not create any new sources of odor during operation. Therefore, proposed project operations would result in an odor impact that is less than significant.

3 GREENHOUSE GAS EMISSIONS

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017a). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.3.2, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). (See also CEQA Guidelines Section 15364.5.)[8] Some GHGs such as CO_2, CH_4, and N_2O occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[9]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (e.g., in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (e.g., in rockets, racecars, and aerosol sprays).

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[8] Climate forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in the California Health and Safety Code 38505 as impacts associated with other climate forcing substances are not evaluated herein.

[9] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (IPCC 1995), IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (CARB 2015), and EPA's "Glossary of Climate Change Terms" (EPA 2016f).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric O_3-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the O_3-depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016f). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of CalEEMod (version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

3.2 Regulatory Setting

3.2.1 Federal Regulations

Massachusetts vs. EPA. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of 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. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the previously discussed U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing EPA, the

Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (EPA 2010).

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry-fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks previously described, in 2011, EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018–2027 for certain trailers, and model years 2021–2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits. Additionally, in March 2017, President Trump directed the EPA Administrator to review the Clean Power Plan in order to determine whether it is consistent with current executive policies concerning GHG emissions, climate change and energy.

Council on Environmental Quality Guidance. On August 5, 2016, the Council on Environmental Quality (CEQ) released final guidance for federal agencies on considering the impacts of GHG emissions in NEPA reviews (CEQ 2016). This guidance supersedes the draft GHG and climate change guidance released by CEQ in 2010 and 2014. The final guidance applies to all proposed federal agency actions, including land and resource management actions. This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change for the environmental effects of a proposed action. The guidance recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action. This guidance was withdrawn by the CEQ on April 5, 2017 as published in the Federal Register Volume 82, Number 64, Section 16576 (CEQ 2017).

3.2.2 State Regulations

Executive Order S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million MT (MMT) CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) in accordance with Health and Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS)
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" (BAU)). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

More recently, in 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050." The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

Based on CARB's research efforts presented in the First Update, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions.

On January 20, 2017, CARB released The *2017 Climate Change Scoping Plan Update* (Second Update) for public review and comment (CARB 2017a). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed subsequently), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the *Short-Lived Climate Pollutant Reduction Strategy* (SLCP Reduction Strategy), a planning document that was adopted by CARB in March 2017, and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016c).

The Second Update has not been considered by CARB's Governing Board at the time this analysis was prepared.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to CARB's membership, and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as previously mentioned, CARB adopted its SLCP Reduction Strategy in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2013 Title 24 standards became effective on July 1, 2014. Buildings constructed in accordance with the 2013 standards were estimated to use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards (CEC 2012).

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. The 2016 Title 24 standards will further reduce energy used and associated GHG emissions. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). The proposed project would be required to comply with the most recent Title 24 standards that are in place at the time of construction.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- 65% of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements; stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

The California Public Utilities Commission (CPUC), CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.[10] As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts (MW) through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "GoSolarCalifornia," was previously titled "Million Solar Roofs."

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a

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[10] See, e.g., CPUC, California's Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59- 7EA82011B257/0/3.pdf. It is expected that achievement of the ZNE goal will occur via revisions to the Title 24 standards.

specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional MPOs are then responsible for preparing an SCS within their RTP. The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), an SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. In 2010, CARB adopted the SB 375 targets for the regional MPOs. The targets for SCAG are a 10.5% reduction in emissions per capita by 2020 and a 15.4% reduction by 2035.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero Emissions Vehicle (ZEV) Program will act as the focused technology of the Advanced Clean Cars Program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015) as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. The bill requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The City's population does not exceed 200,000 so this statute does not apply. Prior to this statutory deadline, in August 2016, the County of San Diego's Board of Supervisors adopted Ordinance No. 10437 adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

SB 350. In 2015, SB 350—the Clean Energy and Pollution Reduction Act—was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12).

Renewable Energy and Energy Procurement

Senate Bill 1078. SB 1078 (2002) established the RPS program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368. SB 1368 (2006) requires the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 MW or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the State that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California by 2045. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75% goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by (1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and (2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2012). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

Other State Regulations and Goals

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009a), and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the legislature established supplementary goals that would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than 2 degrees Celsius (°C) by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than two metric tons by 2050. A total of 135 jurisdictions representing 32 countries and six continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

3.2.3 Local Regulations

3.2.3.1 South Coast Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigations for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008). As discussed in Section 3.4.1, Thresholds of Significance, the SCAQMD has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects; however, these thresholds were not adopted. See Section 2.2.3.1, South Coast Air Quality Management District, for additional discussion on the SCAQMD.

3.2.3.2 Southern California Association of Governments

SB 375 requires MPOs to prepare an SCS in their RTP. The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012 (SCAG 2012), and the 2016–2040 RTP/SCS (2016 RTP/SCS) was adopted in April 2016. Both the 2012 and 2016 RTP/SCSs establish a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the 2012 RTP/SCS links the goals of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging all residents affected by socioeconomic, geographic, and commercial limitations to be provided with fair access. The 2012 and 2016 RTP/SCSs do not require that local general plans, specific plans, or zoning be consistent with it but provide incentives for consistency for governments and developers. The current SCAQMD AQMP (2016 AQMP) is based on the SCAG 2016 RTP/SCS demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2016–2040 RTP/SCS, the SCAG 2016 RTP/SCS. See Section 2.2.3.2, Southern California Association of Governments, for an additional discussion of the SCAG.

3.2.3.3 City of Los Angeles

General Plan

Policies pertaining to improving air quality are addressed in the air quality element of the general plan. Polices specific to GHGs are presented as follows (City of Los Angeles 1992).

Policy 2.1.1: Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities to reduce vehicle trips and/or vehicle miles traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.

Policy 2.1.2: Facilitate and encourage the use of telecommunications (i.e., telecommuting), in both the public and private sectors, to reduce work trips.

Policy 2.2.1: Discourage single-occupant vehicle use through a variety of measures such as market incentive strategies, mode-shift incentives, trip reduction plans and ridesharing subsidies.

Policy 2.2.2: Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management policies.

Policy 2.2.3: Minimize the use of single-occupant vehicles associated with special events or in areas and times of high levels of pedestrian activities.

Policy 3.1.1: Implement programs to finance and improve public transit facilities and service.

Policy 3.2.1: Manage traffic congestion during peak hours.

Policy 3.3.1: Implement the best available system management techniques, and transportation management and mobility action plans to improve the efficiency of existing transportation facilities, subject to availability of funding.

Policy 4.2.1: Revise the City's general plan / community plans to achieve a more compact, efficient urban form and to promote more transit-oriented development and mixed-use development.

Policy 4.2.3: Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

Policy 4.2.5: Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.

Policy 5.1.2: Effect a reduction in energy consumption and shift to non-polluting sources of energy in its buildings and operations.

Policy 5.1.4: Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.

Policy 5.2.1: Reduce emissions from its own vehicles by continuing scheduled maintenance, inspection and vehicle replacement programs; by adhering to the State of California's emission testing and monitoring programs; by using alternative fuel powered vehicles wherever feasible, in accordance with regulatory agencies and City Council policies.

Policy 5.3.1: Support the development and use of equipment powered by electric or low-emitting vehicles.

Sustainable City Plan

In April 2015, the City of Los Angeles's first-ever Sustainable City Plan was released. The plan sets the course for a cleaner environment and a stronger economy, with a commitment to equity as its foundation. The plan is made up of short-term (by 2017) and longer-term (by 2025 and 2035) targets in 14 categories that will advance the City of Los Angeles's environment, economy, and equity (City of Los Angeles 2015). The plan sets GHG emissions reduction targets of 45% by 2025, 60% by 2035, and 80% by 2050, all against a 1990 baseline, and GHG efficiency targets for Los Angeles's economy of improvement by 55% in 2025 and 75% in 2035 from 2009 baseline levels[11] (City of Los Angeles 2015). The first annual Sustainable City Plan report (2015–2016) determined that the City of Los Angeles's emissions are 20% below the 1990 baseline as of 2013, putting the City of Los Angeles nearly halfway to the 2025 plan reduction target of 45% below (City of Los Angeles 2017). The City's Sustainable City Plan is not a qualified GHG reduction plan under CEQA Guidelines Section 15183.5, and thus it cannot be used in a cumulative impacts analysis to determine significance.

3.3 Climate Change Conditions and Inventories

3.3.1 Sources of Greenhouse Gas Emissions

Anthropogenic GHG emissions worldwide in 2017 (the most recent year for which data is available) totaled approximately 50,860 MMT of CO_2e, excluding land use change and forestry (Olivier and Peters 2018). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65 percent of the total global emissions, or approximately 33,290 MMT CO_2e (Olivier and Peters 2018). Table 10 presents the top GHG-emissions-producing countries, as well as the European Union.

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[11] GHG efficiency is the amount of GHG emissions emitted per dollar of economic productivity, which is assumed to be 44.5 MT CO_2e per million dollars of metro area gross domestic product in 2009 (City of Los Angeles 2015).

Table 10

Six Top GHG Producer Countries and the European Union

Emitting Countries	2014 GHG Emissions (MMT CO_2e)[a, b]
China	13,530
United States	6,640
European Union	4,560
India	3,650
Russian Federation	2,220
Japan	1,490
Brazil	1,200
Total	**33,290**

Source: Olivier and Peters 2018.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.

[a] Column may not add due to rounding.

[b] GHG emissions do not include land use change and forestry-related GHG emissions.

National and State Inventories

Per the 2019 EPA Inventory of U.S. GHG Emissions and Sinks: 1990–2017, total U.S. GHG emissions were approximately 6,457 MMT CO_2e in 2017 (EPA 2019b). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6 percent of total GHG emissions (6,457 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.2 percent of CO_2 emissions in 2017 (4,912.0 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2017 were 1.3 percent higher; however, the gross emissions were down from a high of 15.7 percent above the 1990 level that occurred in 2007. GHG emissions decreased from 2016 to 2017 by 0.5 percent (35.5 MMT CO_2e) and, overall, net emissions in 2017 were 13 percent below 2005 levels (EPA 2019b).

According to California's 2000 through 2016 GHG emissions inventory (2018 edition), California emitted 429 MMT CO_2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2016 are presented in Table 11.

Table 11

GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Transportation	176.1	41%

Table 11
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Industrial	98.8	23%
Electricity (in state)	42.9	10%
Electricity (imports)	25.8	6%
Agriculture	34.4	8%
Residential	30.1	7%
Commercial	21.5	5%
Total	**429.4**	**100%**

Source: CARB 2018.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
* Column may not add due to rounding.

Between 2000 and 2016, per-capita GHG emissions in California dropped from a peak of 14 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23 percent decrease. In addition, total GHG emissions in 2015 were approximately 12 MMT CO_2e less than 2015 emissions (CARB 2018).

3.3.2 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra Nevada snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late twenty-first century in central, and most notably, Southern California. By the late century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014) is provided as follows.

Agriculture. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

Biodiversity and Habitat. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs).

Energy. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events and sea level rise.

Forestry. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts and vegetation conversions.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the 21st century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity and duration of extreme heat and heat waves are likely to increase the risk of mortality due to heat related illness as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies.

Transportation. While the transportation industry is a source of GHG emissions it is also vulnerable to climate change risks. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality.

In March 2016, the CNRA released *Safeguarding California: Implementation Action Plans*, a document that shows how California is acting to convert the recommendations contained in the 2014 *Safeguarding California* plan into action (CNRA 2016). Additionally, in May 2017, CNRA released the draft *Safeguarding California Plan: 2017 Update*, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA 2017). The California Natural Resources Agency released its Safeguarding California Plan: 2018 Update in January 2018, which provides a roadmap for state agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 Safeguarding California Plan includes 69 recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 state agencies (CNRA 2018). As with previous state adaptation plans, the 2018 Update addresses acceleration of warming across the state; more intense and frequent heat waves; greater riverine flows; accelerating sea-level rise; more intense and frequent drought; more severe and frequent wildfires; more severe storms and extreme weather events; shrinking snowpack and less overall precipitation; and ocean acidification, hypoxia, and warming.

3.4 Significance Criteria and Methodology

3.4.1 Thresholds of Significance

The significance criteria used to evaluate the proposed project's GHG emissions impacts is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, the proposed project would have a significant environmental impact if it would (14 CCR 15000 et seq.):

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a project-level under CEQA.

SCAQMD

Neither the State of California nor the SCAQMD has adopted emission-based thresholds of significance for GHG emissions under CEQA. However, in October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (SCAQMD 2008). This guidance document, which builds on the previous guidance prepared by the CAPCOA, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008).

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development projects. The most recent proposal, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1 Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2 Consider whether or not the project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3 Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4 Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per service population for project level analyses and 6.6 MT CO_2e per service population for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5 Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

Because the proposed project is construction only and does not fit into one of the land-use types previously outlined, this analysis applies the recommended SCAQMD threshold of 3,000 MT CO_2e per year. Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the proposed project (SCAQMD 2008). While the life of the replacement pipeline is anticipated to be 100 years, and replacement valves are anticipated to have an operational life of 50 years, a project lifetime of 30 years was conservatively assumed consistent with the SCAQMD typical lifetime assumption for projects (SCAQMD 2008). This impact analysis, therefore, compares the amortized construction emissions to the proposed SCAQMD threshold of 3,000 MT CO_2e per year.

3.4.2 Approach and Methodology

CalEEMod Version 2016.3.2 was used to estimate potential proposed project-generated GHG emissions during construction. Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 2.4.2.1 are also applicable for the estimation of construction-related GHG emissions. As such, see Section 2.4.2.1 for a discussion of construction emissions calculation methodology and assumptions.

As discussed in Section 2.4.2.2, the proposed project would not create any new emission sources during operation.

3.5 Impact Analysis

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

Construction of the proposed project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 2.4.2.1. Construction of the proposed project is anticipated to commence in October 2023 and would last approximately 63 months, ending in December 2028. On-site sources of GHG emissions include off-road equipment and off-site sources, including vendor trucks and worker vehicles. Table 12 presents construction emissions for the proposed project in 2023 through 2028 from on-site and off-site emission sources.

Table 12
Estimated Annual Construction Greenhouse Gas Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2023	164.38	0.03	0.00	165.06
2024	660.62	0.11	0.00	663.34
2025	708.14	0.12	0.00	711.06
2026	1,247.87	0.21	0.00	1,253.18
2027	1,245.21	0.21	0.00	1,250.50
2028[*]	810.30	0.29	0.00	818.97

Table 12
Estimated Annual Construction Greenhouse Gas Emissions

Year	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	Metric Tons per Year			
Total				**4,862.11**
30-Year Amortization of Construction Emissions				**162.07**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Attachment 1 for complete results.
* The emissions in 2028 include operational emissions results from CalEEMod to represent GHG emissions from water use during construction.

As shown in Table 12, the estimated total GHG emissions during construction of would be approximately 4,862 MT CO_2e over the construction period. Estimated proposed project-generated construction emissions amortized over 30 years would be approximately 162 MT CO_2e per year. As with proposed project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the proposed project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. As previously discussed, the SCAQMD significance threshold for the proposed project is 3,000 MT CO_2e per year. The proposed project would not exceed this threshold and therefore, the proposed project's GHG contribution would be not cumulatively considerable and is less than significant.

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

Consistency with the City of Los Angeles' Sustainable City Plan

As discussed in Section 3.2.3.3, the Sustainable City Plan is not a qualified GHG reduction plan according to the CEQA Guidelines Section 15183.5 and thus cannot be used in a cumulative impacts analysis to determine significance. Therefore, this discussion of consistency is for informational purposes only. Table 13 provides an overview of the measures and goals within the Sustainable City Plan and the proposed project's consistency with them. As shown in Table 13, the proposed project does not conflict with any of the GHG reducing measures or goals within the Sustainable City Plan and thus is consistent with the plan.

Table 13
Proposed Project Consistency with the Sustainable City Plan Greenhouse Gas Emission Reduction Strategies

Sustainable City Plan Measure	Proposed Project Consistency
Water	
Reduce LADWP purchases of imported water by 50% by 2025, and source 50% of water locally by 2035.	Does not apply. The proposed project would not affect the source of water purchases and, therefore, would not interfere with implementation of this goal.
Reduce average per capita water use by 22.5% by 2025 and 25% by 2035.	Does not apply. The proposed project is necessary for the safety, adequate capacity, and reliability of LADWP's water system in the western San Fernando Valley. The project would not interfere with efforts to reduce per capita water use.
Solar Power	
Increase cumulative total megawatts (MW) of local solar photovoltaic power to 900–1,500 MW by 2025 and 1,500-1,800 MW by 2035.	Does not apply. The proposed project would not inhibit the City from increasing the use of solar power within the City.
Increase cumulative total MW of energy storage capacity to at least 1,654–1,750 MW by 2025.	Does not apply. The proposed project does not pertain to energy storage and would not interfere with efforts to increase energy storage in the City.
Energy Efficient Buildings	
Reduce energy use per square foot below 2013 baseline for all building types by at least 14% by 2025 and 30% by 2035.	Does not apply. The proposed project involves underground pipeline replacements and would not involve any new building construction or building renovations. As such, the project would not interfere with efforts to reduce the energy use of buildings.
Use energy efficiency to deliver 15% of all Los Angeles's projected electricity needs by 2020.	Does not apply. Aside from temporary energy use to power equipment during construction, the proposed project would not use energy or electricity, as it would involve conveyance of potable water that is already flowing through LADWP's water distribution system. As such, measures for electricity efficiency would not apply to the project.
GHGs	
Reduce GHG emissions below 1990 baseline by at least 45% by 2025, 60% by 2035, and 80% by 2050.	Does not apply. The proposed project would not contribute to long-term GHG emission generation. As such, the proposed project would not interfere with efforts to reduce GHG emissions.
Improve GHG efficiency of Los Angeles's economy from 2009 levels by 55% by 2025 and 75% by 2035.	Does not apply. The proposed project would not contribute to long-term GHG emission generation. As such, the proposed project would not interfere with efforts to improve GHG efficiency.
Influence national and global action through the leadership of Los Angeles and other cities on climate change.	Does not apply. The proposed project would not inhibit the City from influencing action on climate change.
Have no ownership stake in coal-fired power plants by 2025.	Does not apply. The proposed project involves the replacement of potable water pipelines and, therefore, would not affect the ownership stake of coal-fired power plants.

Table 13

Proposed Project Consistency with the Sustainable City Plan Greenhouse Gas Emission Reduction Strategies

Sustainable City Plan Measure	Proposed Project Consistency
Waste	
Increase landfill diversion rate to at least 90% by 2025 and 95% by 2035.	Consistent. The proposed project would produce waste during construction. Some construction debris, such as pavement and excavated soils, would be reused on site or recycled to the extent feasible. Wastes would be diverted from landfills to the extent practicable and in accordance with state law. The proposed project would not generate additional wastes during operation.
Increase proportion of waste production and recyclable commodities productively reused and/or repurposed within Los Angeles County to at least 25% by 2025 and 50% by 2035.	Does not apply. The proposed project involves the replacement of potable water pipelines and, therefore, would not interfere with efforts to increase reuse or repurposing of commodities. During construction, pavement and excavated soils would be reused on site or recycled as feasible. The proposed project would not generate additional wastes during operation.

Source: City of Los Angeles 2015.

Consistency with the SCAG's 2016–2040 Regional Transportation Plan

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region. The 2016 RTP/SCS incorporates local land use projections and circulation networks in city and county general plans. The underlying purpose of the 2016 RTP/SCS is to provide direction and guidance by making the best transportation and land use choices for future development. The proposed project would not involve land use changes or land development; as such, the 2016 RTP/SCS is not directly applicable to the proposed project. Rather, the proposed project would involve replacing existing underground potable water pipelines. As such, implementation of the proposed project would not conflict with the goals of the 2016 RTP/SCS.

Consistency with CARB's Scoping Plan

As discussed in Section 3.2.2, State Regulations, the Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[12] Under the Scoping Plan, however, there are

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[12] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b).

several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 14 highlights measures that have been, or will be, developed under the Scoping Plan and the proposed project's consistency with Scoping Plan measures. To the extent that these regulations are applicable to the proposed project, its inhabitants, or uses, the proposed project would comply will all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Table 14
Proposed Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	Consistent. Worker vehicles and cars used by maintenance workers during operation would be in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low-Carbon Fuel Standard	T-2	Consistent. Motor vehicles driven by construction workers and maintenance workers would use fuels in compliance with the latest laws and regulations.
Regional Transportation-Related GHG Targets	T-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Advanced Clean Transit	NA	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Last-Mile Delivery	NA	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Reduction in VMT	NA	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Ship Electrification at Ports (Shore Power)	T-5	Not applicable. The proposed project would not prevent CARB from implementing this measure.

Table 14
Proposed Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Proposed Project	T-8	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Medium and Heavy-Duty GHG Phase 2	—	Not applicable. The proposed project would not prevent CARB from implementing this measure.
High-Speed Rail	T-9	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Energy Efficiency (Natural Gas)	CR-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Combined Heat and Power	E-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Renewable Portfolios Standard (33% by 2020)	E-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Renewable Portfolios Standard (50% by 2050)	NA	Not applicable. The proposed project would not prevent CARB from implementing this measure.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	Not applicable. The proposed project would not prevent CARB from implementing this measure.

Table 14
Proposed Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Water Sector		
Water Use Efficiency	W-1	Consistent. The proposed project would use water for flushing the lines once they are installed. No water use is associated with operation of the project.
Water Recycling	W-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Water System Energy Efficiency	W-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Reuse Urban Runoff	W-4	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Renewable Energy Production	W-5	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Green Buildings		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
3. Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Oil and Gas Extraction GHG Emission Reduction	I-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Reduce GHG Emissions by 20% in Oil Refinery Sector	—	Not applicable. The proposed project would not prevent CARB from implementing this measure.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Refinery Flare Recovery Process Improvements	I-4	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks	I-5	Not applicable. The proposed project would not prevent CARB from implementing this measure.

Table 14
Proposed Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Increasing the Efficiency of Landfill Methane Capture	RW-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Mandatory Commercial Recycling	RW-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Increase Production and Markets for Compost and Other Organics	RW-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Anaerobic/Aerobic Digestion	RW-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Extended Producer Responsibility	RW-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Environmentally Preferable Purchasing	RW-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Forests Sector		
Sustainable Forest Target	F-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.
SF$_6$ Limits in Non-Utility and Non-Semiconductor Applications	H-2	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Reduction of Perfluorocarbons (PFCs in Semiconductor Manufacturing	H-3	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Limit High GWP Use in Consumer Products	H-4	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	Not applicable. The proposed project would not prevent CARB from implementing this measure.
SF$_6$ Leak Reduction Gas Insulated Switchgear	H-6	Not applicable. The proposed project would not prevent CARB from implementing this measure.
40% reduction in methane and hydrofluorocarbon (HFC) emissions	—	Not applicable. The proposed project would not prevent CARB from implementing this measure.

Table 14
Proposed Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
50% reduction in black carbon emissions	—	Not applicable. The proposed project would not prevent CARB from implementing this measure.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	Not applicable. The proposed project would not prevent CARB from implementing this measure.

Source: CARB 2008 and CARB 2017a.
Notes: CARB = California Air Resources Board; CCR = California Code of Regulations; GHG = greenhouse gas; GWP = global warming potential; SB = Senate Bill; SF_6 = sulfur hexafluoride

Based on the analysis in Table 14, the proposed project would not conflict with the applicable strategies and measures in the Scoping Plan.

The proposed project would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32. As discussed in Section 3.2.2, EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis; CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

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

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional

> measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states (CARB 2017a):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The proposed project would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because the proposed project would not exceed the SCAQMD's recommended screening threshold of 3,000 MT CO_2e per year (SCAQMD 2008). This threshold was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Because the proposed project would not exceed the threshold, this analysis provides support for the conclusion that the proposed project would not impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050.

As discussed previously, the proposed project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. The specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available and are therefore considered speculative at this time. The proposed project's consistency would assist in meeting the City's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has also made clear its legal interpretation is that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets. Based on the considerations previously outlined, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant.

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ATTACHMENT 1

CalEEMod Output Files

De Soto Trunk Line Replacement Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2029
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults.

Land Use -

Construction Phase - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Trips and VMT - Based on construction data needs.

On-road Fugitive Dust - CalEEMod defaults.

Demolition -

Grading - Based on construction data needs.

Architectural Coating - CalEEMod defaults

Vehicle Trips - No operational.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer products.

Area Coating - No operational.

Landscape Equipment - No operational.

Energy Use -

Water And Wastewater - Based on water use for hydrostatic testing during construction.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	18000	12023
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	1E-21
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	1E-21
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	1E-21
tblLandscapeEquipment	NumberSummerDays	250	1E-21
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	5,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,040.00
tblTripsAndVMT	VendorTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripNumber	0.00	18.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	25.00	40.00
tblTripsAndVMT	WorkerTripNumber	28.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblWater	IndoorWaterUseRate	0.00	5,000,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0835	0.7509	0.7817	1.8600e-003	0.0536	0.0303	0.0839	0.0138	0.0289	0.0427	0.0000	164.3767	164.3767	0.0273	0.0000	165.0580
2024	0.3167	2.8204	3.1233	7.4700e-003	0.1160	0.1076	0.2236	0.0309	0.1027	0.1336	0.0000	660.6204	660.6204	0.1090	0.0000	663.3443
2025	0.3207	2.8044	3.3596	8.0100e-003	0.1253	0.1011	0.2265	0.0333	0.0965	0.1298	0.0000	708.1401	708.1401	0.1169	0.0000	711.0615
2026	0.5861	5.1161	6.1975	0.0142	0.1551	0.1896	0.3447	0.0416	0.1811	0.2227	0.0000	1,247.8754	1,247.8754	0.2121	0.0000	1,253.1771
2027	0.5849	5.1097	6.1856	0.0142	0.1551	0.1896	0.3447	0.0416	0.1810	0.2226	0.0000	1,245.2070	1,245.2070	0.2118	0.0000	1,250.5029
2028	0.3707	3.2398	3.9670	8.8100e-003	0.0978	0.1225	0.2203	0.0258	0.1170	0.1428	0.0000	772.4548	772.4548	0.1349	0.0000	775.8283
Maximum	**0.5861**	**5.1161**	**6.1975**	**0.0142**	**0.1551**	**0.1896**	**0.3447**	**0.0416**	**0.1811**	**0.2227**	**0.0000**	**1,247.8754**	**1,247.8754**	**0.2121**	**0.0000**	**1,253.1771**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0835	0.7509	0.7817	1.8600e-003	0.0536	0.0303	0.0839	0.0138	0.0289	0.0427	0.0000	164.3766	164.3766	0.0273	0.0000	165.0578
2024	0.3167	2.8204	3.1233	7.4700e-003	0.1160	0.1076	0.2236	0.0309	0.1027	0.1336	0.0000	660.6198	660.6198	0.1090	0.0000	663.3438
2025	0.3207	2.8044	3.3596	8.0100e-003	0.1253	0.1011	0.2265	0.0333	0.0965	0.1298	0.0000	708.1395	708.1395	0.1169	0.0000	711.0609
2026	0.5861	5.1161	6.1975	0.0142	0.1551	0.1896	0.3447	0.0416	0.1811	0.2227	0.0000	1,247.8742	1,247.8742	0.2121	0.0000	1,253.1759
2027	0.5849	5.1097	6.1856	0.0142	0.1551	0.1896	0.3447	0.0416	0.1810	0.2226	0.0000	1,245.2058	1,245.2058	0.2118	0.0000	1,250.5017
2028	0.3707	3.2398	3.9670	8.8100e-003	0.0978	0.1225	0.2203	0.0258	0.1170	0.1428	0.0000	772.4540	772.4540	0.1349	0.0000	775.8275
Maximum	**0.5861**	**5.1161**	**6.1975**	**0.0142**	**0.1551**	**0.1896**	**0.3447**	**0.0416**	**0.1811**	**0.2227**	**0.0000**	**1,247.8742**	**1,247.8742**	**0.2121**	**0.0000**	**1,253.1759**

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

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
15	**9-10-2023**	**12-9-2023**	0.6321	0.6321
16	**12-10-2023**	**3-9-2024**	0.7911	0.7911
17	**3-10-2024**	**6-9-2024**	0.7856	0.7856
18	**6-10-2024**	**9-9-2024**	0.7855	0.7855
19	**9-10-2024**	**12-9-2024**	0.7774	0.7774

20	**12-10-2024**	**3-9-2025**	0.7225	0.7225
21	**3-10-2025**	**6-9-2025**	0.7227	0.7227
22	**6-10-2025**	**9-9-2025**	0.7226	0.7226
23	**9-10-2025**	**12-9-2025**	0.7849	0.7849
24	**12-10-2025**	**3-9-2026**	1.4037	1.4037
25	**3-10-2026**	**6-9-2026**	1.4340	1.4340
26	**6-10-2026**	**9-9-2026**	1.4339	1.4339
27	**9-10-2026**	**12-9-2026**	1.4187	1.4187
28	**12-10-2026**	**3-9-2027**	1.4018	1.4018
29	**3-10-2027**	**6-9-2027**	1.4321	1.4321
30	**6-10-2027**	**9-9-2027**	1.4320	1.4320
31	**9-10-2027**	**12-9-2027**	1.4168	1.4168
32	**12-10-2027**	**3-9-2028**	1.4157	1.4157
33	**3-10-2028**	**6-9-2028**	1.0185	1.0185
34	**6-10-2028**	**9-9-2028**	0.7115	0.7115
35	**9-10-2028**	**9-30-2028**	0.1624	0.1624
		Highest	1.4340	1.4340

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	1.5863	36.2610	37.8473	0.1638	4.0200e-003	43.1410
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5863**	**36.2610**	**37.8473**	**0.1638**	**4.0200e-003**	**43.1410**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	1.5863	36.2610	37.8473	0.1638	4.0200e-003	43.1410
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5863**	**36.2610**	**37.8473**	**0.1638**	**4.0200e-003**	**43.1410**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Open Trench Pipe Installation	Trenching	10/2/2023	4/7/2028	5	1180	
2	Pipe Jacking	Trenching	12/1/2025	12/22/2028	5	800	
3	Paving	Paving	3/10/2028	4/6/2028	5	20	
4	Paving-2	Paving	11/15/2028	12/12/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	5.00	231	0.29
Open Trench Pipe Installation	Cranes	1	6.00	231	0.29
Open Trench Pipe Installation	Excavators	1	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20
Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Rubber Tired Loaders	1	8.00	203	0.36
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45
Pipe Jacking	Air Compressors	1	8.00	78	0.48
Pipe Jacking	Concrete/Industrial Saws	1	8.00	81	0.73

Pipe Jacking	Cranes	1	5.00	231	0.29
Pipe Jacking	Cranes	1	6.00	231	0.29
Pipe Jacking	Excavators	1	8.00	158	0.38
Pipe Jacking	Forklifts	1	8.00	89	0.20
Pipe Jacking	Generator Sets	1	8.00	84	0.74
Pipe Jacking	Pumps	1	3.00	84	0.74
Pipe Jacking	Rubber Tired Loaders	1	8.00	203	0.36
Pipe Jacking	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipe Jacking	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving-2	Air Compressors	0	6.00	78	0.48
Paving-2	Paving Equipment	1	8.00	132	0.36
Paving-2	Plate Compactors	1	8.00	8	0.43
Paving-2	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Open Trench Pipe Installation	10	40.00	28.00	5,100.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Jacking	11	12.00	18.00	1,040.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving-2	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0762	0.6631	0.7178	1.4100e-003		0.0301	0.0301		0.0287	0.0287	0.0000	121.5337	121.5337	0.0252	0.0000	122.1626
Total	**0.0762**	**0.6631**	**0.7178**	**1.4100e-003**		**0.0301**	**0.0301**		**0.0287**	**0.0287**	**0.0000**	**121.5337**	**121.5337**	**0.0252**	**0.0000**	**122.1626**

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.5000e-004	0.0217	6.9300e-003	1.0000e-004	0.0336	4.0000e-005	0.0336	8.3200e-003	4.0000e-005	8.3500e-003	0.0000	9.9536	9.9536	6.5000e-004	0.0000	9.9698
Vendor	1.8100e-003	0.0628	0.0185	2.2000e-004	5.7400e-003	7.0000e-005	5.8100e-003	1.6600e-003	7.0000e-005	1.7200e-003	0.0000	21.3579	21.3579	1.1800e-003	0.0000	21.3873
Worker	4.7900e-003	3.2700e-003	0.0386	1.3000e-004	0.0143	1.0000e-004	0.0144	3.7900e-003	9.0000e-005	3.8800e-003	0.0000	11.5314	11.5314	2.7000e-004	0.0000	11.5382
Total	**7.2500e-003**	**0.0878**	**0.0640**	**4.5000e-004**	**0.0536**	**2.1000e-004**	**0.0538**	**0.0138**	**2.0000e-004**	**0.0140**	**0.0000**	**42.8430**	**42.8430**	**2.1000e-003**	**0.0000**	**42.8953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0762	0.6631	0.7178	1.4100e-003		0.0301	0.0301		0.0287	0.0287	0.0000	121.5336	121.5336	0.0252	0.0000	122.1625
Total	**0.0762**	**0.6631**	**0.7178**	**1.4100e-003**		**0.0301**	**0.0301**		**0.0287**	**0.0287**	**0.0000**	**121.5336**	**121.5336**	**0.0252**	**0.0000**	**122.1625**

3.2 Open Trench Pipe Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.5000e-004	0.0217	6.9300e-003	1.0000e-004	0.0336	4.0000e-005	0.0336	8.3200e-003	4.0000e-005	8.3500e-003	0.0000	9.9536	9.9536	6.5000e-004	0.0000	9.9698
Vendor	1.8100e-003	0.0628	0.0185	2.2000e-004	5.7400e-003	7.0000e-005	5.8100e-003	1.6600e-003	7.0000e-005	1.7200e-003	0.0000	21.3579	21.3579	1.1800e-003	0.0000	21.3873
Worker	4.7900e-003	3.2700e-003	0.0386	1.3000e-004	0.0143	1.0000e-004	0.0144	3.7900e-003	9.0000e-005	3.8800e-003	0.0000	11.5314	11.5314	2.7000e-004	0.0000	11.5382
Total	**7.2500e-003**	**0.0878**	**0.0640**	**4.5000e-004**	**0.0536**	**2.1000e-004**	**0.0538**	**0.0138**	**2.0000e-004**	**0.0140**	**0.0000**	**42.8430**	**42.8430**	**2.1000e-003**	**0.0000**	**42.8953**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2886	2.4688	2.8777	5.6800e-003		0.1068	0.1068		0.1019	0.1019	0.0000	489.9084	489.9084	0.1007	0.0000	492.4257
Total	**0.2886**	**2.4688**	**2.8777**	**5.6800e-003**		**0.1068**	**0.1068**		**0.1019**	**0.1019**	**0.0000**	**489.9084**	**489.9084**	**0.1007**	**0.0000**	**492.4257**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6300e-003	0.0870	0.0284	4.1000e-004	0.0354	1.6000e-004	0.0356	8.9700e-003	1.5000e-004	9.1300e-003	0.0000	39.9763	39.9763	2.6000e-003	0.0000	40.0414
Vendor	7.1500e-003	0.2526	0.0722	8.8000e-004	0.0231	2.8000e-004	0.0234	6.6700e-003	2.7000e-004	6.9400e-003	0.0000	85.7847	85.7847	4.6600e-003	0.0000	85.9013
Worker	0.0183	0.0120	0.1450	5.0000e-004	0.0575	4.0000e-004	0.0579	0.0153	3.7000e-004	0.0156	0.0000	44.9510	44.9510	1.0000e-003	0.0000	44.9760
Total	**0.0281**	**0.3517**	**0.2456**	**1.7900e-003**	**0.1160**	**8.4000e-004**	**0.1169**	**0.0309**	**7.9000e-004**	**0.0317**	**0.0000**	**170.7120**	**170.7120**	**8.2600e-003**	**0.0000**	**170.9187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2886	2.4687	2.8777	5.6800e-003		0.1068	0.1068		0.1019	0.1019	0.0000	489.9078	489.9078	0.1007	0.0000	492.4251
Total	**0.2886**	**2.4687**	**2.8777**	**5.6800e-003**		**0.1068**	**0.1068**		**0.1019**	**0.1019**	**0.0000**	**489.9078**	**489.9078**	**0.1007**	**0.0000**	**492.4251**

3.2 Open Trench Pipe Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6300e-003	0.0870	0.0284	4.1000e-004	0.0354	1.6000e-004	0.0356	8.9700e-003	1.5000e-004	9.1300e-003	0.0000	39.9763	39.9763	2.6000e-003	0.0000	40.0414
Vendor	7.1500e-003	0.2526	0.0722	8.8000e-004	0.0231	2.8000e-004	0.0234	6.6700e-003	2.7000e-004	6.9400e-003	0.0000	85.7847	85.7847	4.6600e-003	0.0000	85.9013
Worker	0.0183	0.0120	0.1450	5.0000e-004	0.0575	4.0000e-004	0.0579	0.0153	3.7000e-004	0.0156	0.0000	44.9510	44.9510	1.0000e-003	0.0000	44.9760
Total	**0.0281**	**0.3517**	**0.2456**	**1.7900e-003**	**0.1160**	**8.4000e-004**	**0.1169**	**0.0309**	**7.9000e-004**	**0.0317**	**0.0000**	**170.7120**	**170.7120**	**8.2600e-003**	**0.0000**	**170.9187**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0973	488.0973	0.0996	0.0000	490.5865
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0973**	**488.0973**	**0.0996**	**0.0000**	**490.5865**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6100e-003	0.0853	0.0285	4.0000e-004	0.0354	1.6000e-004	0.0356	8.9700e-003	1.5000e-004	9.1200e-003	0.0000	39.5992	39.5992	2.5900e-003	0.0000	39.6639
Vendor	6.9400e-003	0.2494	0.0700	8.7000e-004	0.0230	2.8000e-004	0.0233	6.6500e-003	2.7000e-004	6.9100e-003	0.0000	84.9775	84.9775	4.5700e-003	0.0000	85.0917
Worker	0.0173	0.0110	0.1342	4.8000e-004	0.0573	3.9000e-004	0.0577	0.0152	3.6000e-004	0.0156	0.0000	43.0155	43.0155	9.1000e-004	0.0000	43.0382
Total	**0.0269**	**0.3457**	**0.2326**	**1.7500e-003**	**0.1157**	**8.3000e-004**	**0.1165**	**0.0308**	**7.8000e-004**	**0.0316**	**0.0000**	**167.5922**	**167.5922**	**8.0700e-003**	**0.0000**	**167.7938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0967	488.0967	0.0996	0.0000	490.5859
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0967**	**488.0967**	**0.0996**	**0.0000**	**490.5859**

3.2 Open Trench Pipe Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6100e-003	0.0853	0.0285	4.0000e-004	0.0354	1.6000e-004	0.0356	8.9700e-003	1.5000e-004	9.1200e-003	0.0000	39.5992	39.5992	2.5900e-003	0.0000	39.6639
Vendor	6.9400e-003	0.2494	0.0700	8.7000e-004	0.0230	2.8000e-004	0.0233	6.6500e-003	2.7000e-004	6.9100e-003	0.0000	84.9775	84.9775	4.5700e-003	0.0000	85.0917
Worker	0.0173	0.0110	0.1342	4.8000e-004	0.0573	3.9000e-004	0.0577	0.0152	3.6000e-004	0.0156	0.0000	43.0155	43.0155	9.1000e-004	0.0000	43.0382
Total	**0.0269**	**0.3457**	**0.2326**	**1.7500e-003**	**0.1157**	**8.3000e-004**	**0.1165**	**0.0308**	**7.8000e-004**	**0.0316**	**0.0000**	**167.5922**	**167.5922**	**8.0700e-003**	**0.0000**	**167.7938**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0973	488.0973	0.0996	0.0000	490.5865
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0973**	**488.0973**	**0.0996**	**0.0000**	**490.5865**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5900e-003	0.0839	0.0286	4.0000e-004	0.0354	1.5000e-004	0.0356	8.9700e-003	1.5000e-004	9.1200e-003	0.0000	39.3858	39.3858	2.5700e-003	0.0000	39.4502
Vendor	6.7800e-003	0.2471	0.0685	8.7000e-004	0.0230	2.7000e-004	0.0233	6.6500e-003	2.6000e-004	6.9100e-003	0.0000	84.5180	84.5180	4.4900e-003	0.0000	84.6303
Worker	0.0166	0.0101	0.1254	4.6000e-004	0.0573	3.8000e-004	0.0577	0.0152	3.5000e-004	0.0156	0.0000	41.4904	41.4904	8.3000e-004	0.0000	41.5112
Total	**0.0259**	**0.3410**	**0.2225**	**1.7300e-003**	**0.1157**	**8.0000e-004**	**0.1165**	**0.0308**	**7.6000e-004**	**0.0316**	**0.0000**	**165.3943**	**165.3943**	**7.8900e-003**	**0.0000**	**165.5917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0967	488.0967	0.0996	0.0000	490.5859
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0967**	**488.0967**	**0.0996**	**0.0000**	**490.5859**

3.2 Open Trench Pipe Installation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5900e-003	0.0839	0.0286	4.0000e-004	0.0354	1.5000e-004	0.0356	8.9700e-003	1.5000e-004	9.1200e-003	0.0000	39.3858	39.3858	2.5700e-003	0.0000	39.4502
Vendor	6.7800e-003	0.2471	0.0685	8.7000e-004	0.0230	2.7000e-004	0.0233	6.6500e-003	2.6000e-004	6.9100e-003	0.0000	84.5180	84.5180	4.4900e-003	0.0000	84.6303
Worker	0.0166	0.0101	0.1254	4.6000e-004	0.0573	3.8000e-004	0.0577	0.0152	3.5000e-004	0.0156	0.0000	41.4904	41.4904	8.3000e-004	0.0000	41.5112
Total	**0.0259**	**0.3410**	**0.2225**	**1.7300e-003**	**0.1157**	**8.0000e-004**	**0.1165**	**0.0308**	**7.6000e-004**	**0.0316**	**0.0000**	**165.3943**	**165.3943**	**7.8900e-003**	**0.0000**	**165.5917**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0973	488.0973	0.0996	0.0000	490.5865
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0973**	**488.0973**	**0.0996**	**0.0000**	**490.5865**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5700e-003	0.0825	0.0288	4.0000e-004	0.0354	1.5000e-004	0.0356	8.9700e-003	1.4000e-004	9.1100e-003	0.0000	39.1960	39.1960	2.5600e-003	0.0000	39.2599
Vendor	6.6500e-003	0.2448	0.0674	8.6000e-004	0.0230	2.7000e-004	0.0233	6.6500e-003	2.6000e-004	6.9000e-003	0.0000	84.1081	84.1081	4.4200e-003	0.0000	84.2186
Worker	0.0158	9.2900e-003	0.1176	4.4000e-004	0.0573	3.6000e-004	0.0576	0.0152	3.3000e-004	0.0155	0.0000	40.1457	40.1457	7.6000e-004	0.0000	40.1648
Total	**0.0250**	**0.3366**	**0.2137**	**1.7000e-003**	**0.1157**	**7.8000e-004**	**0.1165**	**0.0308**	**7.3000e-004**	**0.0316**	**0.0000**	**163.4499**	**163.4499**	**7.7400e-003**	**0.0000**	**163.6433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2680	2.2347	2.8514	5.6600e-003		0.0918	0.0918		0.0875	0.0875	0.0000	488.0967	488.0967	0.0996	0.0000	490.5859
Total	**0.2680**	**2.2347**	**2.8514**	**5.6600e-003**		**0.0918**	**0.0918**		**0.0875**	**0.0875**	**0.0000**	**488.0967**	**488.0967**	**0.0996**	**0.0000**	**490.5859**

3.2 Open Trench Pipe Installation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5700e-003	0.0825	0.0288	4.0000e-004	0.0354	1.5000e-004	0.0356	8.9700e-003	1.4000e-004	9.1100e-003	0.0000	39.1960	39.1960	2.5600e-003	0.0000	39.2599
Vendor	6.6500e-003	0.2448	0.0674	8.6000e-004	0.0230	2.7000e-004	0.0233	6.6500e-003	2.6000e-004	6.9000e-003	0.0000	84.1081	84.1081	4.4200e-003	0.0000	84.2186
Worker	0.0158	9.2900e-003	0.1176	4.4000e-004	0.0573	3.6000e-004	0.0576	0.0152	3.3000e-004	0.0155	0.0000	40.1457	40.1457	7.6000e-004	0.0000	40.1648
Total	**0.0250**	**0.3366**	**0.2137**	**1.7000e-003**	**0.1157**	**7.8000e-004**	**0.1165**	**0.0308**	**7.3000e-004**	**0.0316**	**0.0000**	**163.4499**	**163.4499**	**7.7400e-003**	**0.0000**	**163.6433**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0719	0.5993	0.7648	1.5200e-003		0.0246	0.0246		0.0235	0.0235	0.0000	130.9073	130.9073	0.0267	0.0000	131.5749
Total	**0.0719**	**0.5993**	**0.7648**	**1.5200e-003**		**0.0246**	**0.0246**		**0.0235**	**0.0235**	**0.0000**	**130.9073**	**130.9073**	**0.0267**	**0.0000**	**131.5749**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0219	7.7600e-003	1.1000e-004	0.0336	4.0000e-005	0.0337	8.3300e-003	4.0000e-005	8.3700e-003	0.0000	10.4691	10.4691	6.8000e-004	0.0000	10.4861
Vendor	1.7500e-003	0.0651	0.0178	2.3000e-004	6.1800e-003	7.0000e-005	6.2500e-003	1.7800e-003	7.0000e-005	1.8500e-003	0.0000	22.4643	22.4643	1.1700e-003	0.0000	22.4935
Worker	4.0300e-003	2.3000e-003	0.0297	1.2000e-004	0.0154	9.0000e-005	0.0155	4.0800e-003	8.0000e-005	4.1600e-003	0.0000	10.4495	10.4495	1.9000e-004	0.0000	10.4542
Total	**6.4700e-003**	**0.0893**	**0.0553**	**4.6000e-004**	**0.0552**	**2.0000e-004**	**0.0554**	**0.0142**	**1.9000e-004**	**0.0144**	**0.0000**	**43.3828**	**43.3828**	**2.0400e-003**	**0.0000**	**43.4337**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0719	0.5993	0.7648	1.5200e-003		0.0246	0.0246		0.0235	0.0235	0.0000	130.9072	130.9072	0.0267	0.0000	131.5748
Total	**0.0719**	**0.5993**	**0.7648**	**1.5200e-003**		**0.0246**	**0.0246**		**0.0235**	**0.0235**	**0.0000**	**130.9072**	**130.9072**	**0.0267**	**0.0000**	**131.5748**

3.2 Open Trench Pipe Installation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0219	7.7600e-003	1.1000e-004	0.0336	4.0000e-005	0.0337	8.3300e-003	4.0000e-005	8.3700e-003	0.0000	10.4691	10.4691	6.8000e-004	0.0000	10.4861
Vendor	1.7500e-003	0.0651	0.0178	2.3000e-004	6.1800e-003	7.0000e-005	6.2500e-003	1.7800e-003	7.0000e-005	1.8500e-003	0.0000	22.4643	22.4643	1.1700e-003	0.0000	22.4935
Worker	4.0300e-003	2.3000e-003	0.0297	1.2000e-004	0.0154	9.0000e-005	0.0155	4.0800e-003	8.0000e-005	4.1600e-003	0.0000	10.4495	10.4495	1.9000e-004	0.0000	10.4542
Total	**6.4700e-003**	**0.0893**	**0.0553**	**4.6000e-004**	**0.0552**	**2.0000e-004**	**0.0554**	**0.0142**	**1.9000e-004**	**0.0144**	**0.0000**	**43.3828**	**43.3828**	**2.0400e-003**	**0.0000**	**43.4337**

3.3 Pipe Jacking - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0249	0.2074	0.2673	5.3000e-004		8.5200e-003	8.5200e-003		8.1500e-003	8.1500e-003	0.0000	45.4499	45.4499	8.8700e-003	0.0000	45.6717
Total	**0.0249**	**0.2074**	**0.2673**	**5.3000e-004**		**8.5200e-003**	**8.5200e-003**		**8.1500e-003**	**8.1500e-003**	**0.0000**	**45.4499**	**45.4499**	**8.8700e-003**	**0.0000**	**45.6717**

3.3 Pipe Jacking - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.2600e-003	7.5000e-004	1.0000e-005	6.7900e-003	0.0000	6.8000e-003	1.6700e-003	0.0000	1.6800e-003	0.0000	1.0496	1.0496	7.0000e-005	0.0000	1.0513
Vendor	3.9000e-004	0.0141	3.9700e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3200e-003	3.8000e-004	2.0000e-005	3.9000e-004	0.0000	4.8140	4.8140	2.6000e-004	0.0000	4.8205
Worker	4.6000e-004	2.9000e-004	3.5500e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1372	1.1372	2.0000e-005	0.0000	1.1378
Total	**9.2000e-004**	**0.0167**	**8.2700e-003**	**7.0000e-005**	**9.6000e-003**	**3.0000e-005**	**9.6400e-003**	**2.4500e-003**	**3.0000e-005**	**2.4800e-003**	**0.0000**	**7.0008**	**7.0008**	**3.5000e-004**	**0.0000**	**7.0096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0249	0.2074	0.2673	5.3000e-004		8.5200e-003	8.5200e-003		8.1500e-003	8.1500e-003	0.0000	45.4498	45.4498	8.8700e-003	0.0000	45.6716
Total	**0.0249**	**0.2074**	**0.2673**	**5.3000e-004**		**8.5200e-003**	**8.5200e-003**		**8.1500e-003**	**8.1500e-003**	**0.0000**	**45.4498**	**45.4498**	**8.8700e-003**	**0.0000**	**45.6716**

3.3 Pipe Jacking - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.2600e-003	7.5000e-004	1.0000e-005	6.7900e-003	0.0000	6.8000e-003	1.6700e-003	0.0000	1.6800e-003	0.0000	1.0496	1.0496	7.0000e-005	0.0000	1.0513
Vendor	3.9000e-004	0.0141	3.9700e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3200e-003	3.8000e-004	2.0000e-005	3.9000e-004	0.0000	4.8140	4.8140	2.6000e-004	0.0000	4.8205
Worker	4.6000e-004	2.9000e-004	3.5500e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1372	1.1372	2.0000e-005	0.0000	1.1378
Total	**9.2000e-004**	**0.0167**	**8.2700e-003**	**7.0000e-005**	**9.6000e-003**	**3.0000e-005**	**9.6400e-003**	**2.4500e-003**	**3.0000e-005**	**2.4800e-003**	**0.0000**	**7.0008**	**7.0008**	**3.5000e-004**	**0.0000**	**7.0096**

3.3 Pipe Jacking - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2821	2.3534	3.0333	5.9800e-003		0.0967	0.0967		0.0925	0.0925	0.0000	515.7571	515.7571	0.1007	0.0000	518.2743
Total	**0.2821**	**2.3534**	**3.0333**	**5.9800e-003**		**0.0967**	**0.0967**		**0.0925**	**0.0925**	**0.0000**	**515.7571**	**515.7571**	**0.1007**	**0.0000**	**518.2743**

3.3 Pipe Jacking - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	0.0252	8.6100e-003	1.2000e-004	7.4500e-003	5.0000e-005	7.5000e-003	1.9100e-003	4.0000e-005	1.9600e-003	0.0000	11.8466	11.8466	7.7000e-004	0.0000	11.8660
Vendor	4.3600e-003	0.1588	0.0441	5.6000e-004	0.0148	1.8000e-004	0.0150	4.2700e-003	1.7000e-004	4.4400e-003	0.0000	54.3330	54.3330	2.8900e-003	0.0000	54.4052
Worker	4.9700e-003	3.0200e-003	0.0376	1.4000e-004	0.0172	1.1000e-004	0.0173	4.5600e-003	1.0000e-004	4.6700e-003	0.0000	12.4471	12.4471	2.5000e-004	0.0000	12.4534
Total	**0.0101**	**0.1871**	**0.0903**	**8.2000e-004**	**0.0394**	**3.4000e-004**	**0.0398**	**0.0107**	**3.1000e-004**	**0.0111**	**0.0000**	**78.6268**	**78.6268**	**3.9100e-003**	**0.0000**	**78.7246**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2821	2.3534	3.0333	5.9800e-003		0.0967	0.0967		0.0925	0.0925	0.0000	515.7565	515.7565	0.1007	0.0000	518.2737
Total	**0.2821**	**2.3534**	**3.0333**	**5.9800e-003**		**0.0967**	**0.0967**		**0.0925**	**0.0925**	**0.0000**	**515.7565**	**515.7565**	**0.1007**	**0.0000**	**518.2737**

3.3 Pipe Jacking - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	0.0252	8.6100e-003	1.2000e-004	7.4500e-003	5.0000e-005	7.5000e-003	1.9100e-003	4.0000e-005	1.9600e-003	0.0000	11.8466	11.8466	7.7000e-004	0.0000	11.8660
Vendor	4.3600e-003	0.1588	0.0441	5.6000e-004	0.0148	1.8000e-004	0.0150	4.2700e-003	1.7000e-004	4.4400e-003	0.0000	54.3330	54.3330	2.8900e-003	0.0000	54.4052
Worker	4.9700e-003	3.0200e-003	0.0376	1.4000e-004	0.0172	1.1000e-004	0.0173	4.5600e-003	1.0000e-004	4.6700e-003	0.0000	12.4471	12.4471	2.5000e-004	0.0000	12.4534
Total	**0.0101**	**0.1871**	**0.0903**	**8.2000e-004**	**0.0394**	**3.4000e-004**	**0.0398**	**0.0107**	**3.1000e-004**	**0.0111**	**0.0000**	**78.6268**	**78.6268**	**3.9100e-003**	**0.0000**	**78.7246**

3.3 Pipe Jacking - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2821	2.3534	3.0333	5.9800e-003		0.0967	0.0967		0.0925	0.0925	0.0000	515.7571	515.7571	0.1007	0.0000	518.2743
Total	**0.2821**	**2.3534**	**3.0333**	**5.9800e-003**		**0.0967**	**0.0967**		**0.0925**	**0.0925**	**0.0000**	**515.7571**	**515.7571**	**0.1007**	**0.0000**	**518.2743**

3.3 Pipe Jacking - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-004	0.0248	8.6600e-003	1.2000e-004	7.4500e-003	5.0000e-005	7.5000e-003	1.9100e-003	4.0000e-005	1.9600e-003	0.0000	11.7895	11.7895	7.7000e-004	0.0000	11.8088
Vendor	4.2700e-003	0.1574	0.0433	5.6000e-004	0.0148	1.7000e-004	0.0150	4.2700e-003	1.6000e-004	4.4400e-003	0.0000	54.0695	54.0695	2.8400e-003	0.0000	54.1405
Worker	4.7400e-003	2.7900e-003	0.0353	1.3000e-004	0.0172	1.1000e-004	0.0173	4.5600e-003	1.0000e-004	4.6600e-003	0.0000	12.0437	12.0437	2.3000e-004	0.0000	12.0494
Total	**9.7800e-003**	**0.1850**	**0.0872**	**8.1000e-004**	**0.0394**	**3.3000e-004**	**0.0398**	**0.0107**	**3.0000e-004**	**0.0111**	**0.0000**	**77.9028**	**77.9028**	**3.8400e-003**	**0.0000**	**77.9987**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2821	2.3534	3.0333	5.9800e-003		0.0967	0.0967		0.0925	0.0925	0.0000	515.7565	515.7565	0.1007	0.0000	518.2737
Total	**0.2821**	**2.3534**	**3.0333**	**5.9800e-003**		**0.0967**	**0.0967**		**0.0925**	**0.0925**	**0.0000**	**515.7565**	**515.7565**	**0.1007**	**0.0000**	**518.2737**

3.3 Pipe Jacking - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-004	0.0248	8.6600e-003	1.2000e-004	7.4500e-003	5.0000e-005	7.5000e-003	1.9100e-003	4.0000e-005	1.9600e-003	0.0000	11.7895	11.7895	7.7000e-004	0.0000	11.8088
Vendor	4.2700e-003	0.1574	0.0433	5.6000e-004	0.0148	1.7000e-004	0.0150	4.2700e-003	1.6000e-004	4.4400e-003	0.0000	54.0695	54.0695	2.8400e-003	0.0000	54.1405
Worker	4.7400e-003	2.7900e-003	0.0353	1.3000e-004	0.0172	1.1000e-004	0.0173	4.5600e-003	1.0000e-004	4.6600e-003	0.0000	12.0437	12.0437	2.3000e-004	0.0000	12.0494
Total	**9.7800e-003**	**0.1850**	**0.0872**	**8.1000e-004**	**0.0394**	**3.3000e-004**	**0.0398**	**0.0107**	**3.0000e-004**	**0.0111**	**0.0000**	**77.9028**	**77.9028**	**3.8400e-003**	**0.0000**	**77.9987**

3.3 Pipe Jacking - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2756	2.2993	2.9635	5.8400e-003		0.0945	0.0945		0.0903	0.0903	0.0000	503.9006	503.9006	0.0984	0.0000	506.3600
Total	**0.2756**	**2.2993**	**2.9635**	**5.8400e-003**		**0.0945**	**0.0945**		**0.0903**	**0.0903**	**0.0000**	**503.9006**	**503.9006**	**0.0984**	**0.0000**	**506.3600**

3.3 Pipe Jacking - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.5000e-004	0.0239	8.5000e-003	1.2000e-004	7.4300e-003	4.0000e-005	7.4800e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	11.4711	11.4711	7.5000e-004	0.0000	11.4898
Vendor	4.1000e-003	0.1526	0.0417	5.4000e-004	0.0145	1.7000e-004	0.0146	4.1700e-003	1.6000e-004	4.3300e-003	0.0000	52.6077	52.6077	2.7300e-003	0.0000	52.6760
Worker	4.4000e-003	2.5200e-003	0.0324	1.3000e-004	0.0168	1.0000e-004	0.0169	4.4600e-003	9.0000e-005	4.5500e-003	0.0000	11.4198	11.4198	2.1000e-004	0.0000	11.4249
Total	**9.2500e-003**	**0.1790**	**0.0827**	**7.9000e-004**	**0.0387**	**3.1000e-004**	**0.0390**	**0.0105**	**2.9000e-004**	**0.0108**	**0.0000**	**75.4986**	**75.4986**	**3.6900e-003**	**0.0000**	**75.5907**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2756	2.2993	2.9635	5.8400e-003		0.0945	0.0945		0.0903	0.0903	0.0000	503.9000	503.9000	0.0984	0.0000	506.3594
Total	**0.2756**	**2.2993**	**2.9635**	**5.8400e-003**		**0.0945**	**0.0945**		**0.0903**	**0.0903**	**0.0000**	**503.9000**	**503.9000**	**0.0984**	**0.0000**	**506.3594**

3.3 Pipe Jacking - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.5000e-004	0.0239	8.5000e-003	1.2000e-004	7.4300e-003	4.0000e-005	7.4800e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	11.4711	11.4711	7.5000e-004	0.0000	11.4898
Vendor	4.1000e-003	0.1526	0.0417	5.4000e-004	0.0145	1.7000e-004	0.0146	4.1700e-003	1.6000e-004	4.3300e-003	0.0000	52.6077	52.6077	2.7300e-003	0.0000	52.6760
Worker	4.4000e-003	2.5200e-003	0.0324	1.3000e-004	0.0168	1.0000e-004	0.0169	4.4600e-003	9.0000e-005	4.5500e-003	0.0000	11.4198	11.4198	2.1000e-004	0.0000	11.4249
Total	**9.2500e-003**	**0.1790**	**0.0827**	**7.9000e-004**	**0.0387**	**3.1000e-004**	**0.0390**	**0.0105**	**2.9000e-004**	**0.0108**	**0.0000**	**75.4986**	**75.4986**	**3.6900e-003**	**0.0000**	**75.5907**

3.4 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2400e-003	0.0296	0.0460	7.0000e-005		1.4500e-003	1.4500e-003		1.3400e-003	1.3400e-003	0.0000	6.1948	6.1948	1.9300e-003	0.0000	6.2432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2400e-003**	**0.0296**	**0.0460**	**7.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**6.1948**	**6.1948**	**1.9300e-003**	**0.0000**	**6.2432**

3.4 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.6500e-003	1.8200e-003	2.0000e-005	6.3000e-004	1.0000e-005	6.4000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2923	2.2923	1.2000e-004	0.0000	2.2953
Worker	3.5000e-004	2.0000e-004	2.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	0.8957	0.8957	2.0000e-005	0.0000	0.8961
Total	**5.3000e-004**	**6.8500e-003**	**4.3600e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9600e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**3.1879**	**3.1879**	**1.4000e-004**	**0.0000**	**3.1913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2400e-003	0.0296	0.0460	7.0000e-005		1.4500e-003	1.4500e-003		1.3400e-003	1.3400e-003	0.0000	6.1948	6.1948	1.9300e-003	0.0000	6.2432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2400e-003**	**0.0296**	**0.0460**	**7.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**6.1948**	**6.1948**	**1.9300e-003**	**0.0000**	**6.2432**

3.4 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.6500e-003	1.8200e-003	2.0000e-005	6.3000e-004	1.0000e-005	6.4000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2923	2.2923	1.2000e-004	0.0000	2.2953
Worker	3.5000e-004	2.0000e-004	2.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	0.8957	0.8957	2.0000e-005	0.0000	0.8961
Total	**5.3000e-004**	**6.8500e-003**	**4.3600e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9600e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**3.1879**	**3.1879**	**1.4000e-004**	**0.0000**	**3.1913**

3.5 Paving-2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2400e-003	0.0296	0.0460	7.0000e-005		1.4500e-003	1.4500e-003		1.3400e-003	1.3400e-003	0.0000	6.1948	6.1948	1.9300e-003	0.0000	6.2432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2400e-003**	**0.0296**	**0.0460**	**7.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**6.1948**	**6.1948**	**1.9300e-003**	**0.0000**	**6.2432**

3.5 Paving-2 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.6500e-003	1.8200e-003	2.0000e-005	6.3000e-004	1.0000e-005	6.4000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2923	2.2923	1.2000e-004	0.0000	2.2953
Worker	3.5000e-004	2.0000e-004	2.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	0.8957	0.8957	2.0000e-005	0.0000	0.8961
Total	**5.3000e-004**	**6.8500e-003**	**4.3600e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9600e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**3.1879**	**3.1879**	**1.4000e-004**	**0.0000**	**3.1913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2400e-003	0.0296	0.0460	7.0000e-005		1.4500e-003	1.4500e-003		1.3400e-003	1.3400e-003	0.0000	6.1948	6.1948	1.9300e-003	0.0000	6.2432
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2400e-003**	**0.0296**	**0.0460**	**7.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**6.1948**	**6.1948**	**1.9300e-003**	**0.0000**	**6.2432**

3.5 Paving-2 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.6500e-003	1.8200e-003	2.0000e-005	6.3000e-004	1.0000e-005	6.4000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2923	2.2923	1.2000e-004	0.0000	2.2953
Worker	3.5000e-004	2.0000e-004	2.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	0.8957	0.8957	2.0000e-005	0.0000	0.8961
Total	**5.3000e-004**	**6.8500e-003**	**4.3600e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9600e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**3.1879**	**3.1879**	**1.4000e-004**	**0.0000**	**3.1913**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552029	0.041590	0.206227	0.111651	0.012966	0.005742	0.022236	0.037458	0.002178	0.001524	0.004915	0.000717	0.000767

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	37.8473	0.1638	4.0200e-003	43.1410
Unmitigated	37.8473	0.1638	4.0200e-003	43.1410

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	5 / 0	37.8473	0.1638	4.0200e-003	43.1410
Total		**37.8473**	**0.1638**	**4.0200e-003**	**43.1410**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	5 / 0	37.8473	0.1638	4.0200e-003	43.1410
Total		**37.8473**	**0.1638**	**4.0200e-003**	**43.1410**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

De Soto Trunk Line Replacement Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2029
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults.

Land Use -

Construction Phase - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Trips and VMT - Based on construction data needs.

On-road Fugitive Dust - CalEEMod defaults.

Demolition -

Grading - Based on construction data needs.

Architectural Coating - CalEEMod defaults

Vehicle Trips - No operational.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer products.

Area Coating - No operational.

Landscape Equipment - No operational.

Energy Use -

Water And Wastewater - Based on water use for hydrostatic testing during construction.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	18000	12023
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	1E-21
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	1E-21
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	1E-21
tblLandscapeEquipment	NumberSummerDays	250	1E-21
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	5,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,040.00
tblTripsAndVMT	VendorTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripNumber	0.00	18.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	25.00	40.00
tblTripsAndVMT	WorkerTripNumber	28.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblWater	IndoorWaterUseRate	0.00	5,000,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.5690	23.0622	24.1203	0.0575	1.6820	0.9315	2.6135	0.4315	0.8896	1.3210	0.0000	5,606.7410	5,606.7410	0.9233	0.0000	5,629.8228
2024	2.4174	21.4884	23.9053	0.0573	0.9021	0.8213	1.7234	0.2400	0.7837	1.0237	0.0000	5,589.6323	5,589.6323	0.9159	0.0000	5,612.5301
2025	4.5004	39.1998	47.6618	0.1094	1.7557	1.4531	3.2088	0.4577	1.3877	1.8454	0.0000	10,607.8825	10,607.8825	1.7918	0.0000	10,652.6767
2026	4.4903	39.1492	47.5523	0.1091	1.2106	1.4529	2.6634	0.3239	1.3875	1.7114	0.0000	10,581.3757	10,581.3757	1.7898	0.0000	10,626.1200
2027	4.4807	39.1018	47.4562	0.1088	1.2106	1.4526	2.6631	0.3239	1.3872	1.7111	0.0000	10,557.9483	10,557.9483	1.7878	0.0000	10,602.6444
2028	4.8472	42.6981	52.4275	0.1192	2.1149	1.5986	3.7135	0.5513	1.5224	2.0736	0.0000	11,579.9150	11,579.9150	2.0140	0.0000	11,630.2656
Maximum	**4.8472**	**42.6981**	**52.4275**	**0.1192**	**2.1149**	**1.5986**	**3.7135**	**0.5513**	**1.5224**	**2.0736**	**0.0000**	**11,579.9150**	**11,579.9150**	**2.0140**	**0.0000**	**11,630.2656**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.5690	23.0622	24.1203	0.0575	1.6820	0.9315	2.6135	0.4315	0.8896	1.3210	0.0000	5,606.7410	5,606.7410	0.9233	0.0000	5,629.8228
2024	2.4174	21.4884	23.9053	0.0573	0.9021	0.8213	1.7234	0.2400	0.7837	1.0237	0.0000	5,589.6323	5,589.6323	0.9159	0.0000	5,612.5301
2025	4.5004	39.1998	47.6618	0.1094	1.7557	1.4531	3.2088	0.4577	1.3877	1.8454	0.0000	10,607.8825	10,607.8825	1.7918	0.0000	10,652.6767
2026	4.4903	39.1492	47.5523	0.1091	1.2106	1.4529	2.6634	0.3239	1.3875	1.7114	0.0000	10,581.3757	10,581.3757	1.7898	0.0000	10,626.1200
2027	4.4807	39.1018	47.4562	0.1088	1.2106	1.4526	2.6631	0.3239	1.3872	1.7111	0.0000	10,557.9483	10,557.9483	1.7878	0.0000	10,602.6444
2028	4.8472	42.6981	52.4275	0.1192	2.1149	1.5986	3.7135	0.5513	1.5224	2.0736	0.0000	11,579.9150	11,579.9150	2.0140	0.0000	11,630.2656
Maximum	**4.8472**	**42.6981**	**52.4275**	**0.1192**	**2.1149**	**1.5986**	**3.7135**	**0.5513**	**1.5224**	**2.0736**	**0.0000**	**11,579.9150**	**11,579.9150**	**2.0140**	**0.0000**	**11,630.2656**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Open Trench Pipe Installation	Trenching	10/2/2023	4/7/2028	5	1180	
2	Pipe Jacking	Trenching	12/1/2025	12/22/2028	5	800	
3	Paving	Paving	3/10/2028	4/6/2028	5	20	
4	Paving-2	Paving	11/15/2028	12/12/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	5.00	231	0.29
Open Trench Pipe Installation	Cranes	1	6.00	231	0.29
Open Trench Pipe Installation	Excavators	1	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20

Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Rubber Tired Loaders	1	8.00	203	0.36
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45
Pipe Jacking	Air Compressors	1	8.00	78	0.48
Pipe Jacking	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking	Cranes	1	5.00	231	0.29
Pipe Jacking	Cranes	1	6.00	231	0.29
Pipe Jacking	Excavators	1	8.00	158	0.38
Pipe Jacking	Forklifts	1	8.00	89	0.20
Pipe Jacking	Generator Sets	1	8.00	84	0.74
Pipe Jacking	Pumps	1	3.00	84	0.74
Pipe Jacking	Rubber Tired Loaders	1	8.00	203	0.36
Pipe Jacking	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipe Jacking	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving-2	Air Compressors	0	6.00	78	0.48
Paving-2	Paving Equipment	1	8.00	132	0.36
Paving-2	Plate Compactors	1	8.00	8	0.43
Paving-2	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Open Trench Pipe Installation	10	40.00	28.00	5,100.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Jacking	11	12.00	18.00	1,040.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving-2	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835		4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**		**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0197	0.6536	0.2085	3.1300e-003	1.0557	1.2100e-003	1.0569	0.2613	1.1600e-003	0.2625		340.2467	340.2467	0.0216		340.7871
Vendor	0.0545	1.9164	0.5396	6.8500e-003	0.1792	2.1500e-003	0.1814	0.0516	2.0600e-003	0.0537		733.2296	733.2296	0.0387		734.1980
Worker	0.1489	0.0895	1.2868	4.1200e-003	0.4471	3.1100e-003	0.4502	0.1186	2.8700e-003	0.1214		411.1721	411.1721	9.7100e-003		411.4148
Total	**0.2231**	**2.6595**	**2.0349**	**0.0141**	**1.6820**	**6.4700e-003**	**1.6885**	**0.4315**	**6.0900e-003**	**0.4375**		**1,484.6484**	**1,484.6484**	**0.0701**		**1,486.4000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835	0.0000	4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**	**0.0000**	**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0197	0.6536	0.2085	3.1300e-003	1.0557	1.2100e-003	1.0569	0.2613	1.1600e-003	0.2625		340.2467	340.2467	0.0216		340.7871
Vendor	0.0545	1.9164	0.5396	6.8500e-003	0.1792	2.1500e-003	0.1814	0.0516	2.0600e-003	0.0537		733.2296	733.2296	0.0387		734.1980
Worker	0.1489	0.0895	1.2868	4.1200e-003	0.4471	3.1100e-003	0.4502	0.1186	2.8700e-003	0.1214		411.1721	411.1721	9.7100e-003		411.4148
Total	**0.2231**	**2.6595**	**2.0349**	**0.0141**	**1.6820**	**6.4700e-003**	**1.6885**	**0.4315**	**6.0900e-003**	**0.4375**		**1,484.6484**	**1,484.6484**	**0.0701**		**1,486.4000**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777		4,122.3782	4,122.3782	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**		**4,122.3782**	**4,122.3782**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0199	0.6498	0.2118	3.1200e-003	0.2757	1.2000e-003	0.2769	0.0698	1.1500e-003	0.0710		338.9994	338.9994	0.0216		339.5392
Vendor	0.0534	1.9117	0.5241	6.8200e-003	0.1792	2.1300e-003	0.1813	0.0516	2.0400e-003	0.0536		730.5712	730.5712	0.0381		731.5245
Worker	0.1409	0.0816	1.2020	3.9900e-003	0.4471	3.0700e-003	0.4502	0.1186	2.8300e-003	0.1214		397.6836	397.6836	8.9000e-003		397.9061
Total	**0.2142**	**2.6430**	**1.9379**	**0.0139**	**0.9021**	**6.4000e-003**	**0.9085**	**0.2400**	**6.0200e-003**	**0.2460**		**1,467.2542**	**1,467.2542**	**0.0686**		**1,468.9698**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777	0.0000	4,122.3781	4,122.3781	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**	**0.0000**	**4,122.3781**	**4,122.3781**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0199	0.6498	0.2118	3.1200e-003	0.2757	1.2000e-003	0.2769	0.0698	1.1500e-003	0.0710		338.9994	338.9994	0.0216		339.5392
Vendor	0.0534	1.9117	0.5241	6.8200e-003	0.1792	2.1300e-003	0.1813	0.0516	2.0400e-003	0.0536		730.5712	730.5712	0.0381		731.5245
Worker	0.1409	0.0816	1.2020	3.9900e-003	0.4471	3.0700e-003	0.4502	0.1186	2.8300e-003	0.1214		397.6836	397.6836	8.9000e-003		397.9061
Total	**0.2142**	**2.6430**	**1.9379**	**0.0139**	**0.9021**	**6.4000e-003**	**0.9085**	**0.2400**	**6.0200e-003**	**0.2460**		**1,467.2542**	**1,467.2542**	**0.0686**		**1,468.9698**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0197	0.6394	0.2134	3.1000e-003	0.2767	1.1900e-003	0.2779	0.0701	1.1400e-003	0.0712		337.0715	337.0715	0.0215		337.6099
Vendor	0.0520	1.8950	0.5102	6.7800e-003	0.1792	2.1000e-003	0.1813	0.0516	2.0100e-003	0.0536		726.4184	726.4184	0.0375		727.3566
Worker	0.1339	0.0746	1.1173	3.8300e-003	0.4471	3.0100e-003	0.4501	0.1186	2.7700e-003	0.1214		382.0282	382.0282	8.1100e-003		382.2310
Total	**0.2056**	**2.6090**	**1.8409**	**0.0137**	**0.9030**	**6.3000e-003**	**0.9093**	**0.2402**	**5.9200e-003**	**0.2462**		**1,445.5180**	**1,445.5180**	**0.0672**		**1,447.1975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0197	0.6394	0.2134	3.1000e-003	0.2767	1.1900e-003	0.2779	0.0701	1.1400e-003	0.0712		337.0715	337.0715	0.0215		337.6099
Vendor	0.0520	1.8950	0.5102	6.7800e-003	0.1792	2.1000e-003	0.1813	0.0516	2.0100e-003	0.0536		726.4184	726.4184	0.0375		727.3566
Worker	0.1339	0.0746	1.1173	3.8300e-003	0.4471	3.0100e-003	0.4501	0.1186	2.7700e-003	0.1214		382.0282	382.0282	8.1100e-003		382.2310
Total	**0.2056**	**2.6090**	**1.8409**	**0.0137**	**0.9030**	**6.3000e-003**	**0.9093**	**0.2402**	**5.9200e-003**	**0.2462**		**1,445.5180**	**1,445.5180**	**0.0672**		**1,447.1975**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0196	0.6287	0.2148	3.0800e-003	0.2767	1.1700e-003	0.2779	0.0701	1.1200e-003	0.0712		335.2383	335.2383	0.0214		335.7743
Vendor	0.0508	1.8774	0.4996	6.7400e-003	0.1792	2.0600e-003	0.1813	0.0516	1.9700e-003	0.0536		722.4396	722.4396	0.0369		723.3628
Worker	0.1277	0.0687	1.0451	3.6900e-003	0.4471	2.9100e-003	0.4500	0.1186	2.6800e-003	0.1213		368.5007	368.5007	7.4300e-003		368.6866
Total	**0.1982**	**2.5748**	**1.7594**	**0.0135**	**0.9030**	**6.1400e-003**	**0.9092**	**0.2402**	**5.7700e-003**	**0.2460**		**1,426.1786**	**1,426.1786**	**0.0658**		**1,427.8236**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0196	0.6287	0.2148	3.0800e-003	0.2767	1.1700e-003	0.2779	0.0701	1.1200e-003	0.0712		335.2383	335.2383	0.0214		335.7743
Vendor	0.0508	1.8774	0.4996	6.7400e-003	0.1792	2.0600e-003	0.1813	0.0516	1.9700e-003	0.0536		722.4396	722.4396	0.0369		723.3628
Worker	0.1277	0.0687	1.0451	3.6900e-003	0.4471	2.9100e-003	0.4500	0.1186	2.6800e-003	0.1213		368.5007	368.5007	7.4300e-003		368.6866
Total	**0.1982**	**2.5748**	**1.7594**	**0.0135**	**0.9030**	**6.1400e-003**	**0.9092**	**0.2402**	**5.7700e-003**	**0.2460**		**1,426.1786**	**1,426.1786**	**0.0658**		**1,427.8236**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0195	0.6190	0.2160	3.0600e-003	0.2767	1.1500e-003	0.2779	0.0701	1.1000e-003	0.0712		333.6099	333.6099	0.0213		334.1429
Vendor	0.0498	1.8604	0.4911	6.7000e-003	0.1792	2.0300e-003	0.1812	0.0516	1.9400e-003	0.0535		718.8988	718.8988	0.0363		719.8072
Worker	0.1217	0.0634	0.9807	3.5700e-003	0.4471	2.7600e-003	0.4499	0.1186	2.5300e-003	0.1211		356.5836	356.5836	6.8200e-003		356.7542
Total	**0.1910**	**2.5428**	**1.6878**	**0.0133**	**0.9030**	**5.9400e-003**	**0.9090**	**0.2402**	**5.5700e-003**	**0.2458**		**1,409.0924**	**1,409.0924**	**0.0645**		**1,410.7042**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0195	0.6190	0.2160	3.0600e-003	0.2767	1.1500e-003	0.2779	0.0701	1.1000e-003	0.0712		333.6099	333.6099	0.0213		334.1429
Vendor	0.0498	1.8604	0.4911	6.7000e-003	0.1792	2.0300e-003	0.1812	0.0516	1.9400e-003	0.0535		718.8988	718.8988	0.0363		719.8072
Worker	0.1217	0.0634	0.9807	3.5700e-003	0.4471	2.7600e-003	0.4499	0.1186	2.5300e-003	0.1211		356.5836	356.5836	6.8200e-003		356.7542
Total	**0.1910**	**2.5428**	**1.6878**	**0.0133**	**0.9030**	**5.9400e-003**	**0.9090**	**0.2402**	**5.5700e-003**	**0.2458**		**1,409.0924**	**1,409.0924**	**0.0645**		**1,410.7042**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0194	0.6110	0.2171	3.0500e-003	0.9816	1.1300e-003	0.9828	0.2431	1.0800e-003	0.2442		332.2237	332.2237	0.0212		332.7535
Vendor	0.0490	1.8463	0.4845	6.6700e-003	0.1792	2.0000e-003	0.1812	0.0516	1.9100e-003	0.0535		715.8811	715.8811	0.0358		716.7755
Worker	0.1156	0.0586	0.9243	3.4700e-003	0.4471	2.5500e-003	0.4497	0.1186	2.3500e-003	0.1209		346.0973	346.0973	6.3000e-003		346.2547
Total	**0.1839**	**2.5159**	**1.6259**	**0.0132**	**1.6079**	**5.6800e-003**	**1.6136**	**0.4133**	**5.3400e-003**	**0.4186**		**1,394.2021**	**1,394.2021**	**0.0633**		**1,395.7838**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0194	0.6110	0.2171	3.0500e-003	0.9816	1.1300e-003	0.9828	0.2431	1.0800e-003	0.2442		332.2237	332.2237	0.0212		332.7535
Vendor	0.0490	1.8463	0.4845	6.6700e-003	0.1792	2.0000e-003	0.1812	0.0516	1.9100e-003	0.0535		715.8811	715.8811	0.0358		716.7755
Worker	0.1156	0.0586	0.9243	3.4700e-003	0.4471	2.5500e-003	0.4497	0.1186	2.3500e-003	0.1209		346.0973	346.0973	6.3000e-003		346.2547
Total	**0.1839**	**2.5159**	**1.6259**	**0.0132**	**1.6079**	**5.6800e-003**	**1.6136**	**0.4133**	**5.3400e-003**	**0.4186**		**1,394.2021**	**1,394.2021**	**0.0633**		**1,395.7838**

3.3 Pipe Jacking - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9400e-003	0.1923	0.0642	9.3000e-004	0.6034	3.6000e-004	0.6037	0.1488	3.4000e-004	0.1491		101.3858	101.3858	6.4800e-003		101.5478
Vendor	0.0334	1.2182	0.3280	4.3600e-003	0.1152	1.3500e-003	0.1166	0.0332	1.2900e-003	0.0345		466.9832	466.9832	0.0241		467.5864
Worker	0.0402	0.0224	0.3352	1.1500e-003	0.1341	9.0000e-004	0.1350	0.0356	8.3000e-004	0.0364		114.6084	114.6084	2.4300e-003		114.6693
Total	**0.0795**	**1.4329**	**0.7274**	**6.4400e-003**	**0.8527**	**2.6100e-003**	**0.8553**	**0.2175**	**2.4600e-003**	**0.2200**		**682.9775**	**682.9775**	**0.0330**		**683.8034**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9400e-003	0.1923	0.0642	9.3000e-004	0.6034	3.6000e-004	0.6037	0.1488	3.4000e-004	0.1491		101.3858	101.3858	6.4800e-003		101.5478
Vendor	0.0334	1.2182	0.3280	4.3600e-003	0.1152	1.3500e-003	0.1166	0.0332	1.2900e-003	0.0345		466.9832	466.9832	0.0241		467.5864
Worker	0.0402	0.0224	0.3352	1.1500e-003	0.1341	9.0000e-004	0.1350	0.0356	8.3000e-004	0.0364		114.6084	114.6084	2.4300e-003		114.6693
Total	**0.0795**	**1.4329**	**0.7274**	**6.4400e-003**	**0.8527**	**2.6100e-003**	**0.8553**	**0.2175**	**2.4600e-003**	**0.2200**		**682.9775**	**682.9775**	**0.0330**		**683.8034**

3.3 Pipe Jacking - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8900e-003	0.1891	0.0646	9.3000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.4000e-004	0.0153		100.8344	100.8344	6.4500e-003		100.9956
Vendor	0.0327	1.2069	0.3212	4.3300e-003	0.1152	1.3300e-003	0.1165	0.0332	1.2700e-003	0.0344		464.4255	464.4255	0.0237		465.0189
Worker	0.0383	0.0206	0.3135	1.1100e-003	0.1341	8.7000e-004	0.1350	0.0356	8.0000e-004	0.0364		110.5502	110.5502	2.2300e-003		110.6060
Total	**0.0769**	**1.4166**	**0.6993**	**6.3700e-003**	**0.3075**	**2.5500e-003**	**0.3101**	**0.0837**	**2.4100e-003**	**0.0861**		**675.8101**	**675.8101**	**0.0324**		**676.6206**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8900e-003	0.1891	0.0646	9.3000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.4000e-004	0.0153		100.8344	100.8344	6.4500e-003		100.9956
Vendor	0.0327	1.2069	0.3212	4.3300e-003	0.1152	1.3300e-003	0.1165	0.0332	1.2700e-003	0.0344		464.4255	464.4255	0.0237		465.0189
Worker	0.0383	0.0206	0.3135	1.1100e-003	0.1341	8.7000e-004	0.1350	0.0356	8.0000e-004	0.0364		110.5502	110.5502	2.2300e-003		110.6060
Total	**0.0769**	**1.4166**	**0.6993**	**6.3700e-003**	**0.3075**	**2.5500e-003**	**0.3101**	**0.0837**	**2.4100e-003**	**0.0861**		**675.8101**	**675.8101**	**0.0324**		**676.6206**

3.3 Pipe Jacking - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8600e-003	0.1862	0.0650	9.2000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.3000e-004	0.0153		100.3446	100.3446	6.4100e-003		100.5049
Vendor	0.0320	1.1960	0.3157	4.3100e-003	0.1152	1.3000e-003	0.1165	0.0332	1.2500e-003	0.0344		462.1492	462.1492	0.0234		462.7332
Worker	0.0365	0.0190	0.2942	1.0700e-003	0.1341	8.3000e-004	0.1350	0.0356	7.6000e-004	0.0363		106.9751	106.9751	2.0500e-003		107.0263
Total	**0.0744**	**1.4012**	**0.6749**	**6.3000e-003**	**0.3075**	**2.4800e-003**	**0.3100**	**0.0837**	**2.3400e-003**	**0.0860**		**669.4690**	**669.4690**	**0.0318**		**670.2644**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8600e-003	0.1862	0.0650	9.2000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.3000e-004	0.0153		100.3446	100.3446	6.4100e-003		100.5049
Vendor	0.0320	1.1960	0.3157	4.3100e-003	0.1152	1.3000e-003	0.1165	0.0332	1.2500e-003	0.0344		462.1492	462.1492	0.0234		462.7332
Worker	0.0365	0.0190	0.2942	1.0700e-003	0.1341	8.3000e-004	0.1350	0.0356	7.6000e-004	0.0363		106.9751	106.9751	2.0500e-003		107.0263
Total	**0.0744**	**1.4012**	**0.6749**	**6.3000e-003**	**0.3075**	**2.4800e-003**	**0.3100**	**0.0837**	**2.3400e-003**	**0.0860**		**669.4690**	**669.4690**	**0.0318**		**670.2644**

3.3 Pipe Jacking - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.1838	0.0653	9.2000e-004	0.0595	3.4000e-004	0.0598	0.0152	3.3000e-004	0.0156		99.9277	99.9277	6.3700e-003		100.0870
Vendor	0.0315	1.1869	0.3115	4.2900e-003	0.1152	1.2900e-003	0.1165	0.0332	1.2300e-003	0.0344		460.2093	460.2093	0.0230		460.7843
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0720**	**1.3883**	**0.6540**	**6.2500e-003**	**0.3088**	**2.4000e-003**	**0.3112**	**0.0840**	**2.2600e-003**	**0.0862**		**663.9662**	**663.9662**	**0.0313**		**664.7477**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.1838	0.0653	9.2000e-004	0.0595	3.4000e-004	0.0598	0.0152	3.3000e-004	0.0156		99.9277	99.9277	6.3700e-003		100.0870
Vendor	0.0315	1.1869	0.3115	4.2900e-003	0.1152	1.2900e-003	0.1165	0.0332	1.2300e-003	0.0344		460.2093	460.2093	0.0230		460.7843
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0720**	**1.3883**	**0.6540**	**6.2500e-003**	**0.3088**	**2.4000e-003**	**0.3112**	**0.0840**	**2.2600e-003**	**0.0862**		**663.9662**	**663.9662**	**0.0313**		**664.7477**

3.4 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0175	0.6594	0.1730	2.3800e-003	0.0640	7.1000e-004	0.0647	0.0184	6.8000e-004	0.0191		255.6718	255.6718	0.0128		255.9913
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0522**	**0.6770**	**0.4503**	**3.4200e-003**	**0.1981**	**1.4800e-003**	**0.1996**	**0.0540**	**1.3800e-003**	**0.0554**		**359.5010**	**359.5010**	**0.0147**		**359.8677**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0175	0.6594	0.1730	2.3800e-003	0.0640	7.1000e-004	0.0647	0.0184	6.8000e-004	0.0191		255.6718	255.6718	0.0128		255.9913
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0522**	**0.6770**	**0.4503**	**3.4200e-003**	**0.1981**	**1.4800e-003**	**0.1996**	**0.0540**	**1.3800e-003**	**0.0554**		**359.5010**	**359.5010**	**0.0147**		**359.8677**

3.5 Paving-2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0175	0.6594	0.1730	2.3800e-003	0.0640	7.1000e-004	0.0647	0.0184	6.8000e-004	0.0191		255.6718	255.6718	0.0128		255.9913
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0522**	**0.6770**	**0.4503**	**3.4200e-003**	**0.1981**	**1.4800e-003**	**0.1996**	**0.0540**	**1.3800e-003**	**0.0554**		**359.5010**	**359.5010**	**0.0147**		**359.8677**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0175	0.6594	0.1730	2.3800e-003	0.0640	7.1000e-004	0.0647	0.0184	6.8000e-004	0.0191		255.6718	255.6718	0.0128		255.9913
Worker	0.0347	0.0176	0.2773	1.0400e-003	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		103.8292	103.8292	1.8900e-003		103.8764
Total	**0.0522**	**0.6770**	**0.4503**	**3.4200e-003**	**0.1981**	**1.4800e-003**	**0.1996**	**0.0540**	**1.3800e-003**	**0.0554**		**359.5010**	**359.5010**	**0.0147**		**359.8677**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552029	0.041590	0.206227	0.111651	0.012966	0.005742	0.022236	0.037458	0.002178	0.001524	0.004915	0.000717	0.000767

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

De Soto Trunk Line Replacement Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2029
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults.

Land Use -

Construction Phase - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Trips and VMT - Based on construction data needs.

On-road Fugitive Dust - CalEEMod defaults.

Demolition -

Grading - Based on construction data needs.

Architectural Coating - CalEEMod defaults

Vehicle Trips - No operational.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer products.

Area Coating - No operational.

Landscape Equipment - No operational.

Energy Use -

Water And Wastewater - Based on water use for hydrostatic testing during construction.

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	18000	12023
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	1E-21
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	1E-21
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	1E-21
tblLandscapeEquipment	NumberSummerDays	250	1E-21
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	5,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,040.00
tblTripsAndVMT	VendorTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripNumber	0.00	18.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	25.00	40.00
tblTripsAndVMT	WorkerTripNumber	28.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblWater	IndoorWaterUseRate	0.00	5,000,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.5872	23.0614	24.0498	0.0569	1.6820	0.9316	2.6137	0.4315	0.8897	1.3212	0.0000	5,552.7681	5,552.7681	0.9259	0.0000	5,575.9151
2024	2.4352	21.4876	23.8399	0.0568	0.9021	0.8214	1.7235	0.2400	0.7838	1.0239	0.0000	5,536.7900	5,536.7900	0.9185	0.0000	5,559.7516
2025	4.5239	39.1938	47.6027	0.1086	1.7557	1.4532	3.2090	0.4577	1.3878	1.8456	0.0000	10,533.8575	10,533.8575	1.7958	0.0000	10,578.7534
2026	4.5134	39.1423	47.5000	0.1084	1.2106	1.4530	2.6636	0.3239	1.3876	1.7115	0.0000	10,508.9461	10,508.9461	1.7937	0.0000	10,553.7896
2027	4.5034	39.0939	47.4102	0.1082	1.2106	1.4527	2.6633	0.3239	1.3873	1.7112	0.0000	10,486.8714	10,486.8714	1.7917	0.0000	10,531.6641
2028	4.8741	42.6870	52.3737	0.1184	2.1149	1.5987	3.7136	0.5513	1.5225	2.0737	0.0000	11,496.1472	11,496.1472	2.0184	0.0000	11,546.6079
Maximum	**4.8741**	**42.6870**	**52.3737**	**0.1184**	**2.1149**	**1.5987**	**3.7136**	**0.5513**	**1.5225**	**2.0737**	**0.0000**	**11,496.1472**	**11,496.1472**	**2.0184**	**0.0000**	**11,546.6079**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.5872	23.0614	24.0498	0.0569	1.6820	0.9316	2.6137	0.4315	0.8897	1.3212	0.0000	5,552.7681	5,552.7681	0.9259	0.0000	5,575.9151
2024	2.4352	21.4876	23.8399	0.0568	0.9021	0.8214	1.7235	0.2400	0.7838	1.0239	0.0000	5,536.7900	5,536.7900	0.9185	0.0000	5,559.7516
2025	4.5239	39.1938	47.6027	0.1086	1.7557	1.4532	3.2090	0.4577	1.3878	1.8456	0.0000	10,533.8575	10,533.8575	1.7958	0.0000	10,578.7534
2026	4.5134	39.1423	47.5000	0.1084	1.2106	1.4530	2.6636	0.3239	1.3876	1.7115	0.0000	10,508.9460	10,508.9460	1.7937	0.0000	10,553.7895
2027	4.5034	39.0939	47.4102	0.1082	1.2106	1.4527	2.6633	0.3239	1.3873	1.7112	0.0000	10,486.8714	10,486.8714	1.7917	0.0000	10,531.6641
2028	4.8741	42.6870	52.3737	0.1184	2.1149	1.5987	3.7136	0.5513	1.5225	2.0737	0.0000	11,496.1472	11,496.1472	2.0184	0.0000	11,546.6078
Maximum	**4.8741**	**42.6870**	**52.3737**	**0.1184**	**2.1149**	**1.5987**	**3.7136**	**0.5513**	**1.5225**	**2.0737**	**0.0000**	**11,496.1472**	**11,496.1472**	**2.0184**	**0.0000**	**11,546.6078**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Open Trench Pipe Installation	Trenching	10/2/2023	4/7/2028	5	1180	
2	Pipe Jacking	Trenching	12/1/2025	12/22/2028	5	800	
3	Paving	Paving	3/10/2028	4/6/2028	5	20	
4	Paving-2	Paving	11/15/2028	12/12/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	5.00	231	0.29
Open Trench Pipe Installation	Cranes	1	6.00	231	0.29
Open Trench Pipe Installation	Excavators	1	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20

Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Rubber Tired Loaders	1	8.00	203	0.36
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45
Pipe Jacking	Air Compressors	1	8.00	78	0.48
Pipe Jacking	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking	Cranes	1	5.00	231	0.29
Pipe Jacking	Cranes	1	6.00	231	0.29
Pipe Jacking	Excavators	1	8.00	158	0.38
Pipe Jacking	Forklifts	1	8.00	89	0.20
Pipe Jacking	Generator Sets	1	8.00	84	0.74
Pipe Jacking	Pumps	1	3.00	84	0.74
Pipe Jacking	Rubber Tired Loaders	1	8.00	203	0.36
Pipe Jacking	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipe Jacking	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving-2	Air Compressors	0	6.00	78	0.48
Paving-2	Paving Equipment	1	8.00	132	0.36
Paving-2	Plate Compactors	1	8.00	8	0.43
Paving-2	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Open Trench Pipe Installation	10	40.00	28.00	5,100.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Jacking	11	12.00	18.00	1,040.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving-2	3	12.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835		4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**		**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.6567	0.2194	3.0700e-003	1.0557	1.2400e-003	1.0570	0.2613	1.1900e-003	0.2625		333.9443	333.9443	0.0224		334.5032
Vendor	0.0574	1.9041	0.5930	6.6600e-003	0.1792	2.2600e-003	0.1815	0.0516	2.1600e-003	0.0538		712.2126	712.2126	0.0413		713.2446
Worker	0.1636	0.0979	1.1520	3.8600e-003	0.4471	3.1100e-003	0.4502	0.1186	2.8700e-003	0.1214		384.5186	384.5186	9.0300e-003		384.7444
Total	**0.2413**	**2.6587**	**1.9643**	**0.0136**	**1.6820**	**6.6100e-003**	**1.6887**	**0.4315**	**6.2200e-003**	**0.4377**		**1,430.6755**	**1,430.6755**	**0.0727**		**1,432.4923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835	0.0000	4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**	**0.0000**	**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.6567	0.2194	3.0700e-003	1.0557	1.2400e-003	1.0570	0.2613	1.1900e-003	0.2625		333.9443	333.9443	0.0224		334.5032
Vendor	0.0574	1.9041	0.5930	6.6600e-003	0.1792	2.2600e-003	0.1815	0.0516	2.1600e-003	0.0538		712.2126	712.2126	0.0413		713.2446
Worker	0.1636	0.0979	1.1520	3.8600e-003	0.4471	3.1100e-003	0.4502	0.1186	2.8700e-003	0.1214		384.5186	384.5186	9.0300e-003		384.7444
Total	**0.2413**	**2.6587**	**1.9643**	**0.0136**	**1.6820**	**6.6100e-003**	**1.6887**	**0.4315**	**6.2200e-003**	**0.4377**		**1,430.6755**	**1,430.6755**	**0.0727**		**1,432.4923**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777		4,122.3782	4,122.3782	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**		**4,122.3782**	**4,122.3782**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0204	0.6531	0.2225	3.0600e-003	0.2757	1.2300e-003	0.2770	0.0698	1.1800e-003	0.0710		332.7725	332.7725	0.0223		333.3303
Vendor	0.0562	1.9000	0.5760	6.6300e-003	0.1792	2.2300e-003	0.1814	0.0516	2.1300e-003	0.0537		709.7903	709.7903	0.0406		710.8053
Worker	0.1553	0.0892	1.0740	3.7300e-003	0.4471	3.0700e-003	0.4502	0.1186	2.8300e-003	0.1214		371.8490	371.8490	8.2700e-003		372.0558
Total	**0.2319**	**2.6422**	**1.8725**	**0.0134**	**0.9021**	**6.5300e-003**	**0.9086**	**0.2400**	**6.1400e-003**	**0.2461**		**1,414.4118**	**1,414.4118**	**0.0712**		**1,416.1913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777	0.0000	4,122.3781	4,122.3781	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**	**0.0000**	**4,122.3781**	**4,122.3781**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0204	0.6531	0.2225	3.0600e-003	0.2757	1.2300e-003	0.2770	0.0698	1.1800e-003	0.0710		332.7725	332.7725	0.0223		333.3303
Vendor	0.0562	1.9000	0.5760	6.6300e-003	0.1792	2.2300e-003	0.1814	0.0516	2.1300e-003	0.0537		709.7903	709.7903	0.0406		710.8053
Worker	0.1553	0.0892	1.0740	3.7300e-003	0.4471	3.0700e-003	0.4502	0.1186	2.8300e-003	0.1214		371.8490	371.8490	8.2700e-003		372.0558
Total	**0.2319**	**2.6422**	**1.8725**	**0.0134**	**0.9021**	**6.5300e-003**	**0.9086**	**0.2400**	**6.1400e-003**	**0.2461**		**1,414.4118**	**1,414.4118**	**0.0712**		**1,416.1913**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.6426	0.2239	3.0400e-003	0.2767	1.2100e-003	0.2779	0.0701	1.1600e-003	0.0712		330.9202	330.9202	0.0222		331.4760
Vendor	0.0547	1.8834	0.5609	6.5900e-003	0.1792	2.1900e-003	0.1814	0.0516	2.0900e-003	0.0537		705.8757	705.8757	0.0399		706.8735
Worker	0.1480	0.0816	0.9972	3.5800e-003	0.4471	3.0100e-003	0.4501	0.1186	2.7700e-003	0.1214		357.2014	357.2014	7.5300e-003		357.3897
Total	**0.2230**	**2.6075**	**1.7820**	**0.0132**	**0.9030**	**6.4100e-003**	**0.9094**	**0.2402**	**6.0200e-003**	**0.2463**		**1,393.9973**	**1,393.9973**	**0.0697**		**1,395.7393**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.6426	0.2239	3.0400e-003	0.2767	1.2100e-003	0.2779	0.0701	1.1600e-003	0.0712		330.9202	330.9202	0.0222		331.4760
Vendor	0.0547	1.8834	0.5609	6.5900e-003	0.1792	2.1900e-003	0.1814	0.0516	2.0900e-003	0.0537		705.8757	705.8757	0.0399		706.8735
Worker	0.1480	0.0816	0.9972	3.5800e-003	0.4471	3.0100e-003	0.4501	0.1186	2.7700e-003	0.1214		357.2014	357.2014	7.5300e-003		357.3897
Total	**0.2230**	**2.6075**	**1.7820**	**0.0132**	**0.9030**	**6.4100e-003**	**0.9094**	**0.2402**	**6.0200e-003**	**0.2463**		**1,393.9973**	**1,393.9973**	**0.0697**		**1,395.7393**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6317	0.2251	3.0200e-003	0.2767	1.1900e-003	0.2779	0.0701	1.1400e-003	0.0712		329.1603	329.1603	0.0221		329.7131
Vendor	0.0535	1.8657	0.5493	6.5500e-003	0.1792	2.1400e-003	0.1813	0.0516	2.0400e-003	0.0536		702.1287	702.1287	0.0392		703.1096
Worker	0.1416	0.0751	0.9318	3.4500e-003	0.4471	2.9100e-003	0.4500	0.1186	2.6800e-003	0.1213		344.5349	344.5349	6.9000e-003		344.7074
Total	**0.2153**	**2.5725**	**1.7061**	**0.0130**	**0.9030**	**6.2400e-003**	**0.9093**	**0.2402**	**5.8600e-003**	**0.2461**		**1,375.8239**	**1,375.8239**	**0.0682**		**1,377.5300**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6317	0.2251	3.0200e-003	0.2767	1.1900e-003	0.2779	0.0701	1.1400e-003	0.0712		329.1603	329.1603	0.0221		329.7131
Vendor	0.0535	1.8657	0.5493	6.5500e-003	0.1792	2.1400e-003	0.1813	0.0516	2.0400e-003	0.0536		702.1287	702.1287	0.0392		703.1096
Worker	0.1416	0.0751	0.9318	3.4500e-003	0.4471	2.9100e-003	0.4500	0.1186	2.6800e-003	0.1213		344.5349	344.5349	6.9000e-003		344.7074
Total	**0.2153**	**2.5725**	**1.7061**	**0.0130**	**0.9030**	**6.2400e-003**	**0.9093**	**0.2402**	**5.8600e-003**	**0.2461**		**1,375.8239**	**1,375.8239**	**0.0682**		**1,377.5300**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0200	0.6219	0.2263	3.0100e-003	0.2767	1.1700e-003	0.2779	0.0701	1.1200e-003	0.0712		327.5910	327.5910	0.0220		328.1402
Vendor	0.0524	1.8487	0.5399	6.5200e-003	0.1792	2.1000e-003	0.1813	0.0516	2.0000e-003	0.0536		698.7749	698.7749	0.0386		699.7390
Worker	0.1353	0.0692	0.8734	3.3400e-003	0.4471	2.7600e-003	0.4499	0.1186	2.5300e-003	0.1211		333.3629	333.3629	6.3300e-003		333.5211
Total	**0.2078**	**2.5398**	**1.6395**	**0.0129**	**0.9030**	**6.0300e-003**	**0.9091**	**0.2402**	**5.6500e-003**	**0.2459**		**1,359.7288**	**1,359.7288**	**0.0669**		**1,361.4003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0200	0.6219	0.2263	3.0100e-003	0.2767	1.1700e-003	0.2779	0.0701	1.1200e-003	0.0712		327.5910	327.5910	0.0220		328.1402
Vendor	0.0524	1.8487	0.5399	6.5200e-003	0.1792	2.1000e-003	0.1813	0.0516	2.0000e-003	0.0536		698.7749	698.7749	0.0386		699.7390
Worker	0.1353	0.0692	0.8734	3.3400e-003	0.4471	2.7600e-003	0.4499	0.1186	2.5300e-003	0.1211		333.3629	333.3629	6.3300e-003		333.5211
Total	**0.2078**	**2.5398**	**1.6395**	**0.0129**	**0.9030**	**6.0300e-003**	**0.9091**	**0.2402**	**5.6500e-003**	**0.2459**		**1,359.7288**	**1,359.7288**	**0.0669**		**1,361.4003**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0199	0.6138	0.2273	2.9900e-003	0.9816	1.1500e-003	0.9828	0.2431	1.1000e-003	0.2442		326.2605	326.2605	0.0218		326.8060
Vendor	0.0515	1.8347	0.5326	6.4900e-003	0.1792	2.0600e-003	0.1813	0.0516	1.9700e-003	0.0536		695.9351	695.9351	0.0379		696.8836
Worker	0.1288	0.0640	0.8222	3.2400e-003	0.4471	2.5500e-003	0.4497	0.1186	2.3500e-003	0.1209		323.5229	323.5229	5.8400e-003		323.6688
Total	**0.2002**	**2.5124**	**1.5821**	**0.0127**	**1.6079**	**5.7600e-003**	**1.6137**	**0.4133**	**5.4200e-003**	**0.4187**		**1,345.7186**	**1,345.7186**	**0.0656**		**1,347.3584**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0199	0.6138	0.2273	2.9900e-003	0.9816	1.1500e-003	0.9828	0.2431	1.1000e-003	0.2442		326.2605	326.2605	0.0218		326.8060
Vendor	0.0515	1.8347	0.5326	6.4900e-003	0.1792	2.0600e-003	0.1813	0.0516	1.9700e-003	0.0536		695.9351	695.9351	0.0379		696.8836
Worker	0.1288	0.0640	0.8222	3.2400e-003	0.4471	2.5500e-003	0.4497	0.1186	2.3500e-003	0.1209		323.5229	323.5229	5.8400e-003		323.6688
Total	**0.2002**	**2.5124**	**1.5821**	**0.0127**	**1.6079**	**5.7600e-003**	**1.6137**	**0.4133**	**5.4200e-003**	**0.4187**		**1,345.7186**	**1,345.7186**	**0.0656**		**1,347.3584**

3.3 Pipe Jacking - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.1100e-003	0.1933	0.0674	9.1000e-004	0.6034	3.6000e-004	0.6037	0.1488	3.5000e-004	0.1491		99.5356	99.5356	6.6900e-003		99.7028
Vendor	0.0352	1.2107	0.3606	4.2400e-003	0.1152	1.4000e-003	0.1166	0.0332	1.3400e-003	0.0345		453.7772	453.7772	0.0257		454.4187
Worker	0.0444	0.0245	0.2992	1.0700e-003	0.1341	9.0000e-004	0.1350	0.0356	8.3000e-004	0.0364		107.1604	107.1604	2.2600e-003		107.2169
Total	**0.0857**	**1.4285**	**0.7271**	**6.2200e-003**	**0.8527**	**2.6600e-003**	**0.8554**	**0.2175**	**2.5200e-003**	**0.2200**		**660.4733**	**660.4733**	**0.0346**		**661.3384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.1100e-003	0.1933	0.0674	9.1000e-004	0.6034	3.6000e-004	0.6037	0.1488	3.5000e-004	0.1491		99.5356	99.5356	6.6900e-003		99.7028
Vendor	0.0352	1.2107	0.3606	4.2400e-003	0.1152	1.4000e-003	0.1166	0.0332	1.3400e-003	0.0345		453.7772	453.7772	0.0257		454.4187
Worker	0.0444	0.0245	0.2992	1.0700e-003	0.1341	9.0000e-004	0.1350	0.0356	8.3000e-004	0.0364		107.1604	107.1604	2.2600e-003		107.2169
Total	**0.0857**	**1.4285**	**0.7271**	**6.2200e-003**	**0.8527**	**2.6600e-003**	**0.8554**	**0.2175**	**2.5200e-003**	**0.2200**		**660.4733**	**660.4733**	**0.0346**		**661.3384**

3.3 Pipe Jacking - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0600e-003	0.1900	0.0677	9.1000e-004	0.0582	3.6000e-004	0.0586	0.0149	3.4000e-004	0.0153		99.0063	99.0063	6.6500e-003		99.1725
Vendor	0.0344	1.1994	0.3531	4.2100e-003	0.1152	1.3800e-003	0.1166	0.0332	1.3100e-003	0.0345		451.3685	451.3685	0.0252		451.9990
Worker	0.0425	0.0225	0.2795	1.0400e-003	0.1341	8.7000e-004	0.1350	0.0356	8.0000e-004	0.0364		103.3605	103.3605	2.0700e-003		103.4122
Total	**0.0829**	**1.4119**	**0.7003**	**6.1600e-003**	**0.3075**	**2.6100e-003**	**0.3102**	**0.0837**	**2.4500e-003**	**0.0861**		**653.7352**	**653.7352**	**0.0339**		**654.5837**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0600e-003	0.1900	0.0677	9.1000e-004	0.0582	3.6000e-004	0.0586	0.0149	3.4000e-004	0.0153		99.0063	99.0063	6.6500e-003		99.1725
Vendor	0.0344	1.1994	0.3531	4.2100e-003	0.1152	1.3800e-003	0.1166	0.0332	1.3100e-003	0.0345		451.3685	451.3685	0.0252		451.9990
Worker	0.0425	0.0225	0.2795	1.0400e-003	0.1341	8.7000e-004	0.1350	0.0356	8.0000e-004	0.0364		103.3605	103.3605	2.0700e-003		103.4122
Total	**0.0829**	**1.4119**	**0.7003**	**6.1600e-003**	**0.3075**	**2.6100e-003**	**0.3102**	**0.0837**	**2.4500e-003**	**0.0861**		**653.7352**	**653.7352**	**0.0339**		**654.5837**

3.3 Pipe Jacking - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0200e-003	0.1871	0.0681	9.0000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.4000e-004	0.0153		98.5342	98.5342	6.6100e-003		98.6994
Vendor	0.0337	1.1884	0.3471	4.1900e-003	0.1152	1.3500e-003	0.1166	0.0332	1.2900e-003	0.0345		449.2124	449.2124	0.0248		449.8322
Worker	0.0406	0.0208	0.2620	1.0000e-003	0.1341	8.3000e-004	0.1350	0.0356	7.6000e-004	0.0363		100.0089	100.0089	1.9000e-003		100.0563
Total	**0.0803**	**1.3963**	**0.6771**	**6.0900e-003**	**0.3075**	**2.5300e-003**	**0.3101**	**0.0837**	**2.3900e-003**	**0.0861**		**647.7555**	**647.7555**	**0.0333**		**648.5880**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0200e-003	0.1871	0.0681	9.0000e-004	0.0582	3.5000e-004	0.0586	0.0149	3.4000e-004	0.0153		98.5342	98.5342	6.6100e-003		98.6994
Vendor	0.0337	1.1884	0.3471	4.1900e-003	0.1152	1.3500e-003	0.1166	0.0332	1.2900e-003	0.0345		449.2124	449.2124	0.0248		449.8322
Worker	0.0406	0.0208	0.2620	1.0000e-003	0.1341	8.3000e-004	0.1350	0.0356	7.6000e-004	0.0363		100.0089	100.0089	1.9000e-003		100.0563
Total	**0.0803**	**1.3963**	**0.6771**	**6.0900e-003**	**0.3075**	**2.5300e-003**	**0.3101**	**0.0837**	**2.3900e-003**	**0.0861**		**647.7555**	**647.7555**	**0.0333**		**648.5880**

3.3 Pipe Jacking - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9800e-003	0.1846	0.0684	9.0000e-004	0.0595	3.5000e-004	0.0598	0.0152	3.3000e-004	0.0156		98.1341	98.1341	6.5600e-003		98.2981
Vendor	0.0331	1.1794	0.3424	4.1700e-003	0.1152	1.3200e-003	0.1165	0.0332	1.2700e-003	0.0344		447.3869	447.3869	0.0244		447.9966
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0777**	**1.3832**	**0.6574**	**6.0400e-003**	**0.3088**	**2.4400e-003**	**0.3112**	**0.0840**	**2.3000e-003**	**0.0863**		**642.5778**	**642.5778**	**0.0327**		**643.3954**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9800e-003	0.1846	0.0684	9.0000e-004	0.0595	3.5000e-004	0.0598	0.0152	3.3000e-004	0.0156		98.1341	98.1341	6.5600e-003		98.2981
Vendor	0.0331	1.1794	0.3424	4.1700e-003	0.1152	1.3200e-003	0.1165	0.0332	1.2700e-003	0.0344		447.3869	447.3869	0.0244		447.9966
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0777**	**1.3832**	**0.6574**	**6.0400e-003**	**0.3088**	**2.4400e-003**	**0.3112**	**0.0840**	**2.3000e-003**	**0.0863**		**642.5778**	**642.5778**	**0.0327**		**643.3954**

3.4 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.6552	0.1902	2.3200e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		248.5483	248.5483	0.0136		248.8870
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0570**	**0.6744**	**0.4369**	**3.2900e-003**	**0.1981**	**1.5100e-003**	**0.1996**	**0.0540**	**1.4000e-003**	**0.0554**		**345.6051**	**345.6051**	**0.0153**		**345.9876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.6552	0.1902	2.3200e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		248.5483	248.5483	0.0136		248.8870
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0570**	**0.6744**	**0.4369**	**3.2900e-003**	**0.1981**	**1.5100e-003**	**0.1996**	**0.0540**	**1.4000e-003**	**0.0554**		**345.6051**	**345.6051**	**0.0153**		**345.9876**

3.5 Paving-2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.6552	0.1902	2.3200e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		248.5483	248.5483	0.0136		248.8870
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0570**	**0.6744**	**0.4369**	**3.2900e-003**	**0.1981**	**1.5100e-003**	**0.1996**	**0.0540**	**1.4000e-003**	**0.0554**		**345.6051**	**345.6051**	**0.0153**		**345.9876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.6552	0.1902	2.3200e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		248.5483	248.5483	0.0136		248.8870
Worker	0.0386	0.0192	0.2467	9.7000e-004	0.1341	7.7000e-004	0.1349	0.0356	7.0000e-004	0.0363		97.0569	97.0569	1.7500e-003		97.1006
Total	**0.0570**	**0.6744**	**0.4369**	**3.2900e-003**	**0.1981**	**1.5100e-003**	**0.1996**	**0.0540**	**1.4000e-003**	**0.0554**		**345.6051**	**345.6051**	**0.0153**		**345.9876**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552029	0.041590	0.206227	0.111651	0.012966	0.005742	0.022236	0.037458	0.002178	0.001524	0.004915	0.000717	0.000767

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**2.8100e-003**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

De Soto Trunk Line Replacement Project LST

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2029
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults.

Land Use -

Construction Phase - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Trips and VMT - Based on construction data needs.

On-road Fugitive Dust - CalEEMod defaults.

Demolition -

Grading - Based on construction data needs.

Architectural Coating - CalEEMod defaults

Vehicle Trips - No operational.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer products.

Area Coating - No operational.

Landscape Equipment - No operational.

Energy Use -

Water And Wastewater -

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	21900	12023
tblAreaCoating	ReapplicationRatePercent	10	0

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripNumber	0.00	5,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,040.00
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripNumber	0.00	18.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripNumber	25.00	40.00
tblTripsAndVMT	WorkerTripNumber	28.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.4157	22.1797	22.5529	0.0457	0.0219	0.9257	0.9477	5.9100e-003	0.8842	0.8901	0.0000	4,370.4350	4,370.4350	0.8805	0.0000	4,392.4462
2024	2.2691	20.6125	22.4080	0.0456	0.0145	0.8156	0.8301	4.0900e-003	0.7783	0.7824	0.0000	4,367.8391	4,367.8391	0.8735	0.0000	4,389.6775
2025	4.3050	37.9286	45.7301	0.0927	0.0258	1.4451	1.4709	7.1100e-003	1.3802	1.3873	0.0000	8,856.1814	8,856.1814	1.7311	0.0000	8,899.4576
2026	4.3008	37.9131	45.7044	0.0927	0.0206	1.4450	1.4656	5.8400e-003	1.3801	1.3859	0.0000	8,851.8184	8,851.8184	1.7297	0.0000	8,895.0605
2027	4.2970	37.8997	45.6836	0.0926	0.0206	1.4450	1.4656	5.8400e-003	1.3801	1.3859	0.0000	8,848.2247	8,848.2247	1.7284	0.0000	8,891.4345
2028	4.6338	41.3472	50.3852	0.1004	0.0312	1.5900	1.6211	8.6000e-003	1.5143	1.5228	0.0000	9,593.5626	9,593.5626	1.9469	0.0000	9,642.2341
Maximum	**4.6338**	**41.3472**	**50.3852**	**0.1004**	**0.0312**	**1.5900**	**1.6211**	**8.6000e-003**	**1.5143**	**1.5228**	**0.0000**	**9,593.5626**	**9,593.5626**	**1.9469**	**0.0000**	**9,642.2341**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.4157	22.1797	22.5529	0.0457	0.0219	0.9257	0.9477	5.9100e-003	0.8842	0.8901	0.0000	4,370.4350	4,370.4350	0.8805	0.0000	4,392.4462
2024	2.2691	20.6125	22.4080	0.0456	0.0145	0.8156	0.8301	4.0900e-003	0.7783	0.7824	0.0000	4,367.8391	4,367.8391	0.8735	0.0000	4,389.6775
2025	4.3050	37.9286	45.7301	0.0927	0.0258	1.4451	1.4709	7.1100e-003	1.3802	1.3873	0.0000	8,856.1814	8,856.1814	1.7311	0.0000	8,899.4576
2026	4.3008	37.9131	45.7044	0.0927	0.0206	1.4450	1.4656	5.8400e-003	1.3801	1.3859	0.0000	8,851.8184	8,851.8184	1.7297	0.0000	8,895.0605
2027	4.2970	37.8997	45.6836	0.0926	0.0206	1.4450	1.4656	5.8400e-003	1.3801	1.3859	0.0000	8,848.2247	8,848.2247	1.7284	0.0000	8,891.4345
2028	4.6338	41.3472	50.3852	0.1004	0.0312	1.5900	1.6211	8.6000e-003	1.5143	1.5228	0.0000	9,593.5625	9,593.5625	1.9469	0.0000	9,642.2341
Maximum	**4.6338**	**41.3472**	**50.3852**	**0.1004**	**0.0312**	**1.5900**	**1.6211**	**8.6000e-003**	**1.5143**	**1.5228**	**0.0000**	**9,593.5625**	**9,593.5625**	**1.9469**	**0.0000**	**9,642.2341**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Open Trench Pipe Installation	Trenching	10/2/2023	4/7/2028	5	1180	
2	Pipe Jacking	Trenching	12/1/2025	12/22/2028	5	800	
3	Paving	Paving	3/10/2028	4/6/2028	5	20	
4	Paving-2	Paving	11/15/2028	12/12/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	5.00	231	0.29
Open Trench Pipe Installation	Cranes	1	6.00	231	0.29
Open Trench Pipe Installation	Excavators	1	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20

Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Rubber Tired Loaders	1	8.00	203	0.36
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45
Pipe Jacking	Air Compressors	1	8.00	78	0.48
Pipe Jacking	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking	Cranes	1	5.00	231	0.29
Pipe Jacking	Cranes	1	6.00	231	0.29
Pipe Jacking	Excavators	1	8.00	158	0.38
Pipe Jacking	Forklifts	1	8.00	89	0.20
Pipe Jacking	Generator Sets	1	8.00	84	0.74
Pipe Jacking	Pumps	1	3.00	84	0.74
Pipe Jacking	Rubber Tired Loaders	1	8.00	203	0.36
Pipe Jacking	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipe Jacking	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving-2	Air Compressors	0	6.00	78	0.48
Paving-2	Paving Equipment	1	8.00	132	0.36
Paving-2	Plate Compactors	1	8.00	8	0.43
Paving-2	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Open Trench Pipe Installation	10	40.00	28.00	5,100.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Pipe Jacking	11	12.00	18.00	1,040.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	10.00	0.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Paving-2	3	12.00	10.00	0.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835		4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**		**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7200e-003	0.3359	0.0402	4.8000e-004	0.0101	9.0000e-005	0.0102	2.5200e-003	9.0000e-005	2.6000e-003		51.5174	51.5174	5.8200e-003		51.6630
Vendor	0.0275	1.4321	0.2960	1.7000e-003	5.6500e-003	3.4000e-004	5.9900e-003	1.7000e-003	3.3000e-004	2.0300e-003		183.3027	183.3027	0.0207		183.8203
Worker	0.0376	8.9400e-003	0.1313	1.4000e-004	6.1700e-003	2.8000e-004	6.4500e-003	1.6900e-003	2.6000e-004	1.9400e-003		13.5223	13.5223	7.1000e-004		13.5401
Total	**0.0699**	**1.7770**	**0.4674**	**2.3200e-003**	**0.0219**	**7.1000e-004**	**0.0227**	**5.9100e-003**	**6.8000e-004**	**6.5700e-003**		**248.3424**	**248.3424**	**0.0272**		**249.0233**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835	0.0000	4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**	**0.0000**	**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7200e-003	0.3359	0.0402	4.8000e-004	0.0101	9.0000e-005	0.0102	2.5200e-003	9.0000e-005	2.6000e-003		51.5174	51.5174	5.8200e-003		51.6630
Vendor	0.0275	1.4321	0.2960	1.7000e-003	5.6500e-003	3.4000e-004	5.9900e-003	1.7000e-003	3.3000e-004	2.0300e-003		183.3027	183.3027	0.0207		183.8203
Worker	0.0376	8.9400e-003	0.1313	1.4000e-004	6.1700e-003	2.8000e-004	6.4500e-003	1.6900e-003	2.6000e-004	1.9400e-003		13.5223	13.5223	7.1000e-004		13.5401
Total	**0.0699**	**1.7770**	**0.4674**	**2.3200e-003**	**0.0219**	**7.1000e-004**	**0.0227**	**5.9100e-003**	**6.8000e-004**	**6.5700e-003**		**248.3424**	**248.3424**	**0.0272**		**249.0233**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777		4,122.3782	4,122.3782	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**		**4,122.3782**	**4,122.3782**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.6100e-003	0.3327	0.0398	4.7000e-004	2.7100e-003	8.0000e-005	2.7900e-003	7.0000e-004	8.0000e-005	7.7000e-004		50.9409	50.9409	5.6300e-003		51.0816
Vendor	0.0263	1.4264	0.2805	1.6800e-003	5.6500e-003	3.2000e-004	5.9700e-003	1.7000e-003	3.0000e-004	2.0000e-003		181.4563	181.4563	0.0200		181.9559
Worker	0.0349	8.0100e-003	0.1204	1.3000e-004	6.1700e-003	2.8000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		13.0638	13.0638	6.4000e-004		13.0797
Total	**0.0658**	**1.7671**	**0.4407**	**2.2800e-003**	**0.0145**	**6.8000e-004**	**0.0152**	**4.0900e-003**	**6.3000e-004**	**4.7100e-003**		**245.4609**	**245.4609**	**0.0263**		**246.1171**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777	0.0000	4,122.3781	4,122.3781	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**	**0.0000**	**4,122.3781**	**4,122.3781**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.6100e-003	0.3327	0.0398	4.7000e-004	2.7100e-003	8.0000e-005	2.7900e-003	7.0000e-004	8.0000e-005	7.7000e-004		50.9409	50.9409	5.6300e-003		51.0816
Vendor	0.0263	1.4264	0.2805	1.6800e-003	5.6500e-003	3.2000e-004	5.9700e-003	1.7000e-003	3.0000e-004	2.0000e-003		181.4563	181.4563	0.0200		181.9559
Worker	0.0349	8.0100e-003	0.1204	1.3000e-004	6.1700e-003	2.8000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		13.0638	13.0638	6.4000e-004		13.0797
Total	**0.0658**	**1.7671**	**0.4407**	**2.2800e-003**	**0.0145**	**6.8000e-004**	**0.0152**	**4.0900e-003**	**6.3000e-004**	**4.7100e-003**		**245.4609**	**245.4609**	**0.0263**		**246.1171**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.5200e-003	0.3297	0.0396	4.6000e-004	2.7200e-003	8.0000e-005	2.7900e-003	7.0000e-004	7.0000e-005	7.7000e-004		50.3552	50.3552	5.4400e-003		50.4911
Vendor	0.0252	1.4198	0.2685	1.6600e-003	5.6500e-003	2.9000e-004	5.9400e-003	1.7000e-003	2.8000e-004	1.9800e-003		179.5415	179.5415	0.0193		180.0236
Worker	0.0326	7.2000e-003	0.1107	1.3000e-004	6.1700e-003	2.7000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.5633	12.5633	5.7000e-004		12.5775
Total	**0.0624**	**1.7567**	**0.4188**	**2.2500e-003**	**0.0145**	**6.4000e-004**	**0.0152**	**4.0900e-003**	**6.0000e-004**	**4.6900e-003**		**242.4599**	**242.4599**	**0.0253**		**243.0922**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.5200e-003	0.3297	0.0396	4.6000e-004	2.7200e-003	8.0000e-005	2.7900e-003	7.0000e-004	7.0000e-005	7.7000e-004		50.3552	50.3552	5.4400e-003		50.4911
Vendor	0.0252	1.4198	0.2685	1.6600e-003	5.6500e-003	2.9000e-004	5.9400e-003	1.7000e-003	2.8000e-004	1.9800e-003		179.5415	179.5415	0.0193		180.0236
Worker	0.0326	7.2000e-003	0.1107	1.3000e-004	6.1700e-003	2.7000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.5633	12.5633	5.7000e-004		12.5775
Total	**0.0624**	**1.7567**	**0.4188**	**2.2500e-003**	**0.0145**	**6.4000e-004**	**0.0152**	**4.0900e-003**	**6.0000e-004**	**4.6900e-003**		**242.4599**	**242.4599**	**0.0253**		**243.0922**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4400e-003	0.3267	0.0397	4.6000e-004	2.7200e-003	7.0000e-005	2.7900e-003	7.0000e-004	7.0000e-005	7.6000e-004		49.7881	49.7881	5.2600e-003		49.9196
Vendor	0.0244	1.4133	0.2595	1.6500e-003	5.6500e-003	2.7000e-004	5.9200e-003	1.7000e-003	2.6000e-004	1.9600e-003		177.6848	177.6848	0.0186		178.1508
Worker	0.0306	6.5100e-003	0.1023	1.2000e-004	6.1700e-003	2.7000e-004	6.4300e-003	1.6900e-003	2.5000e-004	1.9300e-003		12.1208	12.1208	5.2000e-004		12.1337
Total	**0.0594**	**1.7465**	**0.4014**	**2.2300e-003**	**0.0145**	**6.1000e-004**	**0.0151**	**4.0900e-003**	**5.8000e-004**	**4.6500e-003**		**239.5937**	**239.5937**	**0.0244**		**240.2041**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4400e-003	0.3267	0.0397	4.6000e-004	2.7200e-003	7.0000e-005	2.7900e-003	7.0000e-004	7.0000e-005	7.6000e-004		49.7881	49.7881	5.2600e-003		49.9196
Vendor	0.0244	1.4133	0.2595	1.6500e-003	5.6500e-003	2.7000e-004	5.9200e-003	1.7000e-003	2.6000e-004	1.9600e-003		177.6848	177.6848	0.0186		178.1508
Worker	0.0306	6.5100e-003	0.1023	1.2000e-004	6.1700e-003	2.7000e-004	6.4300e-003	1.6900e-003	2.5000e-004	1.9300e-003		12.1208	12.1208	5.2000e-004		12.1337
Total	**0.0594**	**1.7465**	**0.4014**	**2.2300e-003**	**0.0145**	**6.1000e-004**	**0.0151**	**4.0900e-003**	**5.8000e-004**	**4.6500e-003**		**239.5937**	**239.5937**	**0.0244**		**240.2041**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3800e-003	0.3242	0.0399	4.5000e-004	2.7200e-003	6.0000e-005	2.7800e-003	7.0000e-004	6.0000e-005	7.6000e-004		49.3290	49.3290	5.0900e-003		49.4562
Vendor	0.0236	1.4076	0.2524	1.6300e-003	5.6500e-003	2.5000e-004	5.9000e-003	1.7000e-003	2.4000e-004	1.9400e-003		176.1733	176.1733	0.0180		176.6240
Worker	0.0286	5.9100e-003	0.0949	1.2000e-004	6.1700e-003	2.6000e-004	6.4200e-003	1.6900e-003	2.4000e-004	1.9200e-003		11.7259	11.7259	4.7000e-004		11.7376
Total	**0.0567**	**1.7377**	**0.3873**	**2.2000e-003**	**0.0145**	**5.7000e-004**	**0.0151**	**4.0900e-003**	**5.4000e-004**	**4.6200e-003**		**237.2282**	**237.2282**	**0.0236**		**237.8178**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3800e-003	0.3242	0.0399	4.5000e-004	2.7200e-003	6.0000e-005	2.7800e-003	7.0000e-004	6.0000e-005	7.6000e-004		49.3290	49.3290	5.0900e-003		49.4562
Vendor	0.0236	1.4076	0.2524	1.6300e-003	5.6500e-003	2.5000e-004	5.9000e-003	1.7000e-003	2.4000e-004	1.9400e-003		176.1733	176.1733	0.0180		176.6240
Worker	0.0286	5.9100e-003	0.0949	1.2000e-004	6.1700e-003	2.6000e-004	6.4200e-003	1.6900e-003	2.4000e-004	1.9200e-003		11.7259	11.7259	4.7000e-004		11.7376
Total	**0.0567**	**1.7377**	**0.3873**	**2.2000e-003**	**0.0145**	**5.7000e-004**	**0.0151**	**4.0900e-003**	**5.4000e-004**	**4.6200e-003**		**237.2282**	**237.2282**	**0.0236**		**237.8178**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3300e-003	0.3219	0.0403	4.5000e-004	9.4200e-003	6.0000e-005	9.4700e-003	2.3400e-003	6.0000e-005	2.4000e-003		48.8990	48.8990	4.9300e-003		49.0222
Vendor	0.0230	1.4015	0.2470	1.6200e-003	5.6500e-003	2.4000e-004	5.8900e-003	1.7000e-003	2.2000e-004	1.9300e-003		174.7561	174.7561	0.0175		175.1928
Worker	0.0268	5.3800e-003	0.0885	1.2000e-004	6.1700e-003	2.4000e-004	6.4100e-003	1.6900e-003	2.2000e-004	1.9100e-003		11.3735	11.3735	4.2000e-004		11.3841
Total	**0.0542**	**1.7288**	**0.3758**	**2.1900e-003**	**0.0212**	**5.4000e-004**	**0.0218**	**5.7300e-003**	**5.0000e-004**	**6.2400e-003**		**235.0286**	**235.0286**	**0.0228**		**235.5992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.874 5	4,122.874 5	0.8411		4,143.900 7
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.874 5**	**4,122.874 5**	**0.8411**		**4,143.900 7**

3.2 Open Trench Pipe Installation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3300e-003	0.3219	0.0403	4.5000e-004	9.4200e-003	6.0000e-005	9.4700e-003	2.3400e-003	6.0000e-005	2.4000e-003		48.8990	48.8990	4.9300e-003		49.0222
Vendor	0.0230	1.4015	0.2470	1.6200e-003	5.6500e-003	2.4000e-004	5.8900e-003	1.7000e-003	2.2000e-004	1.9300e-003		174.7561	174.7561	0.0175		175.1928
Worker	0.0268	5.3800e-003	0.0885	1.2000e-004	6.1700e-003	2.4000e-004	6.4100e-003	1.6900e-003	2.2000e-004	1.9100e-003		11.3735	11.3735	4.2000e-004		11.3841
Total	**0.0542**	**1.7288**	**0.3758**	**2.1900e-003**	**0.0212**	**5.4000e-004**	**0.0218**	**5.7300e-003**	**5.0000e-004**	**6.2400e-003**		**235.0286**	**235.0286**	**0.0228**		**235.5992**

3.3 Pipe Jacking - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3600e-003	0.0992	0.0119	1.4000e-004	5.7600e-003	2.0000e-005	5.7800e-003	1.4200e-003	2.0000e-005	1.4400e-003		15.1460	15.1460	1.6400e-003		15.1869
Vendor	0.0162	0.9127	0.1726	1.0700e-003	3.6300e-003	1.9000e-004	3.8200e-003	1.0900e-003	1.8000e-004	1.2700e-003		115.4195	115.4195	0.0124		115.7294
Worker	9.7900e-003	2.1600e-003	0.0332	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	8.0000e-005	5.8000e-004		3.7690	3.7690	1.7000e-004		3.7733
Total	**0.0274**	**1.0141**	**0.2177**	**1.2500e-003**	**0.0112**	**2.9000e-004**	**0.0115**	**3.0200e-003**	**2.8000e-004**	**3.2900e-003**		**134.3345**	**134.3345**	**0.0142**		**134.6896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3600e-003	0.0992	0.0119	1.4000e-004	5.7600e-003	2.0000e-005	5.7800e-003	1.4200e-003	2.0000e-005	1.4400e-003		15.1460	15.1460	1.6400e-003		15.1869
Vendor	0.0162	0.9127	0.1726	1.0700e-003	3.6300e-003	1.9000e-004	3.8200e-003	1.0900e-003	1.8000e-004	1.2700e-003		115.4195	115.4195	0.0124		115.7294
Worker	9.7900e-003	2.1600e-003	0.0332	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	8.0000e-005	5.8000e-004		3.7690	3.7690	1.7000e-004		3.7733
Total	**0.0274**	**1.0141**	**0.2177**	**1.2500e-003**	**0.0112**	**2.9000e-004**	**0.0115**	**3.0200e-003**	**2.8000e-004**	**3.2900e-003**		**134.3345**	**134.3345**	**0.0142**		**134.6896**

3.3 Pipe Jacking - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3400e-003	0.0983	0.0119	1.4000e-004	5.8000e-004	2.0000e-005	6.0000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.9755	14.9755	1.5800e-003		15.0150
Vendor	0.0157	0.9085	0.1668	1.0600e-003	3.6300e-003	1.7000e-004	3.8100e-003	1.0900e-003	1.7000e-004	1.2600e-003		114.2259	114.2259	0.0120		114.5255
Worker	9.1700e-003	1.9500e-003	0.0307	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.6363	3.6363	1.5000e-004		3.6401
Total	**0.0262**	**1.0088**	**0.2094**	**1.2400e-003**	**6.0600e-003**	**2.7000e-004**	**6.3400e-003**	**1.7500e-003**	**2.6000e-004**	**2.0100e-003**		**132.8377**	**132.8377**	**0.0137**		**133.1807**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3400e-003	0.0983	0.0119	1.4000e-004	5.8000e-004	2.0000e-005	6.0000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.9755	14.9755	1.5800e-003		15.0150
Vendor	0.0157	0.9085	0.1668	1.0600e-003	3.6300e-003	1.7000e-004	3.8100e-003	1.0900e-003	1.7000e-004	1.2600e-003		114.2259	114.2259	0.0120		114.5255
Worker	9.1700e-003	1.9500e-003	0.0307	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.6363	3.6363	1.5000e-004		3.6401
Total	**0.0262**	**1.0088**	**0.2094**	**1.2400e-003**	**6.0600e-003**	**2.7000e-004**	**6.3400e-003**	**1.7500e-003**	**2.6000e-004**	**2.0100e-003**		**132.8377**	**132.8377**	**0.0137**		**133.1807**

3.3 Pipe Jacking - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3200e-003	0.0975	0.0120	1.4000e-004	5.8000e-004	2.0000e-005	6.0000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.8374	14.8374	1.5300e-003		14.8757
Vendor	0.0152	0.9049	0.1623	1.0500e-003	3.6300e-003	1.6000e-004	3.7900e-003	1.0900e-003	1.5000e-004	1.2500e-003		113.2543	113.2543	0.0116		113.5440
Worker	8.5900e-003	1.7700e-003	0.0285	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.5178	3.5178	1.4000e-004		3.5213
Total	**0.0251**	**1.0042**	**0.2028**	**1.2300e-003**	**6.0600e-003**	**2.6000e-004**	**6.3200e-003**	**1.7500e-003**	**2.4000e-004**	**2.0000e-003**		**131.6094**	**131.6094**	**0.0133**		**131.9409**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3200e-003	0.0975	0.0120	1.4000e-004	5.8000e-004	2.0000e-005	6.0000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.8374	14.8374	1.5300e-003		14.8757
Vendor	0.0152	0.9049	0.1623	1.0500e-003	3.6300e-003	1.6000e-004	3.7900e-003	1.0900e-003	1.5000e-004	1.2500e-003		113.2543	113.2543	0.0116		113.5440
Worker	8.5900e-003	1.7700e-003	0.0285	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.5178	3.5178	1.4000e-004		3.5213
Total	**0.0251**	**1.0042**	**0.2028**	**1.2300e-003**	**6.0600e-003**	**2.6000e-004**	**6.3200e-003**	**1.7500e-003**	**2.4000e-004**	**2.0000e-003**		**131.6094**	**131.6094**	**0.0133**		**131.9409**

3.3 Pipe Jacking - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3000e-003	0.0968	0.0121	1.4000e-004	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.7080	14.7080	1.4800e-003		14.7451
Vendor	0.0148	0.9010	0.1588	1.0400e-003	3.6300e-003	1.5000e-004	3.7800e-003	1.0900e-003	1.4000e-004	1.2400e-003		112.3432	112.3432	0.0112		112.6240
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0242**	**0.9994**	**0.1975**	**1.2100e-003**	**6.0700e-003**	**2.4000e-004**	**6.3100e-003**	**1.7500e-003**	**2.3000e-004**	**1.9800e-003**		**130.4633**	**130.4633**	**0.0128**		**130.7843**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3000e-003	0.0968	0.0121	1.4000e-004	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.7000e-004		14.7080	14.7080	1.4800e-003		14.7451
Vendor	0.0148	0.9010	0.1588	1.0400e-003	3.6300e-003	1.5000e-004	3.7800e-003	1.0900e-003	1.4000e-004	1.2400e-003		112.3432	112.3432	0.0112		112.6240
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0242**	**0.9994**	**0.1975**	**1.2100e-003**	**6.0700e-003**	**2.4000e-004**	**6.3100e-003**	**1.7500e-003**	**2.3000e-004**	**1.9800e-003**		**130.4633**	**130.4633**	**0.0128**		**130.7843**

3.4 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2300e-003	0.5005	0.0882	5.8000e-004	2.0200e-003	8.0000e-005	2.1000e-003	6.1000e-004	8.0000e-005	6.9000e-004		62.4129	62.4129	6.2400e-003		62.5689
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0163**	**0.5021**	**0.1148**	**6.1000e-004**	**3.8700e-003**	**1.5000e-004**	**4.0200e-003**	**1.1200e-003**	**1.5000e-004**	**1.2600e-003**		**65.8250**	**65.8250**	**6.3700e-003**		**65.9841**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2300e-003	0.5005	0.0882	5.8000e-004	2.0200e-003	8.0000e-005	2.1000e-003	6.1000e-004	8.0000e-005	6.9000e-004		62.4129	62.4129	6.2400e-003		62.5689
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0163**	**0.5021**	**0.1148**	**6.1000e-004**	**3.8700e-003**	**1.5000e-004**	**4.0200e-003**	**1.1200e-003**	**1.5000e-004**	**1.2600e-003**		**65.8250**	**65.8250**	**6.3700e-003**		**65.9841**

3.5 Paving-2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2300e-003	0.5005	0.0882	5.8000e-004	2.0200e-003	8.0000e-005	2.1000e-003	6.1000e-004	8.0000e-005	6.9000e-004		62.4129	62.4129	6.2400e-003		62.5689
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0163**	**0.5021**	**0.1148**	**6.1000e-004**	**3.8700e-003**	**1.5000e-004**	**4.0200e-003**	**1.1200e-003**	**1.5000e-004**	**1.2600e-003**		**65.8250**	**65.8250**	**6.3700e-003**		**65.9841**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2300e-003	0.5005	0.0882	5.8000e-004	2.0200e-003	8.0000e-005	2.1000e-003	6.1000e-004	8.0000e-005	6.9000e-004		62.4129	62.4129	6.2400e-003		62.5689
Worker	8.0500e-003	1.6100e-003	0.0266	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.4121	3.4121	1.3000e-004		3.4152
Total	**0.0163**	**0.5021**	**0.1148**	**6.1000e-004**	**3.8700e-003**	**1.5000e-004**	**4.0200e-003**	**1.1200e-003**	**1.5000e-004**	**1.2600e-003**		**65.8250**	**65.8250**	**6.3700e-003**		**65.9841**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552029	0.041590	0.206227	0.111651	0.012966	0.005742	0.022236	0.037458	0.002178	0.001524	0.004915	0.000717	0.000767

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

De Soto Trunk Line Replacement Project LST

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2029
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Defaults.

Land Use -

Construction Phase - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Off-road Equipment - Based on construction data needs.

Trips and VMT - Based on construction data needs.

On-road Fugitive Dust - CalEEMod defaults.

Demolition -

Grading - Based on construction data needs.

Architectural Coating - CalEEMod defaults

Vehicle Trips - No operational.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer products.

Area Coating - No operational.

Landscape Equipment - No operational.

Energy Use -

Water And Wastewater -

Construction Off-road Equipment Mitigation - In accordance with SCAQMD Rule 403.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	21900	12023
tblAreaCoating	ReapplicationRatePercent	10	0

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripNumber	0.00	5,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,040.00
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripLength	6.90	0.19
tblTripsAndVMT	VendorTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripNumber	0.00	18.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripLength	14.70	0.19
tblTripsAndVMT	WorkerTripNumber	25.00	40.00
tblTripsAndVMT	WorkerTripNumber	28.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.4146	22.1371	22.6388	0.0454	0.0219	0.9259	0.9478	5.9100e-003	0.8843	0.8902	0.0000	4,342.5933	4,342.5933	0.8838	0.0000	4,364.6889
2024	2.2681	20.5707	22.4904	0.0454	0.0145	0.8157	0.8302	4.0900e-003	0.7785	0.7825	0.0000	4,340.3251	4,340.3251	0.8768	0.0000	4,362.2451
2025	4.3046	37.8643	45.8512	0.0923	0.0258	1.4453	1.4710	7.1100e-003	1.3803	1.3874	0.0000	8,813.7988	8,813.7988	1.7360	0.0000	8,857.1980
2026	4.3004	37.8499	45.8218	0.0923	0.0206	1.4452	1.4658	5.8400e-003	1.3803	1.3861	0.0000	8,809.9338	8,809.9338	1.7344	0.0000	8,853.2948
2027	4.2968	37.8373	45.7978	0.0922	0.0206	1.4451	1.4657	5.8400e-003	1.3802	1.3860	0.0000	8,806.7432	8,806.7432	1.7330	0.0000	8,850.0678
2028	4.6334	41.2748	50.5181	0.0999	0.0312	1.5901	1.6213	8.6000e-003	1.5144	1.5230	0.0000	9,545.2061	9,545.2061	1.9521	0.0000	9,594.0083
Maximum	**4.6334**	**41.2748**	**50.5181**	**0.0999**	**0.0312**	**1.5901**	**1.6213**	**8.6000e-003**	**1.5144**	**1.5230**	**0.0000**	**9,545.2061**	**9,545.2061**	**1.9521**	**0.0000**	**9,594.0083**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.4146	22.1371	22.6388	0.0454	0.0219	0.9259	0.9478	5.9100e-003	0.8843	0.8902	0.0000	4,342.5933	4,342.5933	0.8838	0.0000	4,364.6889
2024	2.2681	20.5707	22.4904	0.0454	0.0145	0.8157	0.8302	4.0900e-003	0.7785	0.7825	0.0000	4,340.3251	4,340.3251	0.8768	0.0000	4,362.2451
2025	4.3046	37.8643	45.8512	0.0923	0.0258	1.4453	1.4710	7.1100e-003	1.3803	1.3874	0.0000	8,813.7988	8,813.7988	1.7360	0.0000	8,857.1980
2026	4.3004	37.8499	45.8218	0.0923	0.0206	1.4452	1.4658	5.8400e-003	1.3803	1.3861	0.0000	8,809.9338	8,809.9338	1.7344	0.0000	8,853.2948
2027	4.2968	37.8373	45.7978	0.0922	0.0206	1.4451	1.4657	5.8400e-003	1.3802	1.3860	0.0000	8,806.7432	8,806.7432	1.7330	0.0000	8,850.0678
2028	4.6334	41.2748	50.5181	0.0999	0.0312	1.5901	1.6213	8.6000e-003	1.5144	1.5230	0.0000	9,545.2061	9,545.2061	1.9521	0.0000	9,594.0083
Maximum	**4.6334**	**41.2748**	**50.5181**	**0.0999**	**0.0312**	**1.5901**	**1.6213**	**8.6000e-003**	**1.5144**	**1.5230**	**0.0000**	**9,545.2061**	**9,545.2061**	**1.9521**	**0.0000**	**9,594.0083**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Open Trench Pipe Installation	Trenching	10/2/2023	4/7/2028	5	1180	
2	Pipe Jacking	Trenching	12/1/2025	12/22/2028	5	800	
3	Paving	Paving	3/10/2028	4/6/2028	5	20	
4	Paving-2	Paving	11/15/2028	12/12/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	5.00	231	0.29
Open Trench Pipe Installation	Cranes	1	6.00	231	0.29
Open Trench Pipe Installation	Excavators	1	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20

Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Rubber Tired Loaders	1	8.00	203	0.36
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45
Pipe Jacking	Air Compressors	1	8.00	78	0.48
Pipe Jacking	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking	Cranes	1	5.00	231	0.29
Pipe Jacking	Cranes	1	6.00	231	0.29
Pipe Jacking	Excavators	1	8.00	158	0.38
Pipe Jacking	Forklifts	1	8.00	89	0.20
Pipe Jacking	Generator Sets	1	8.00	84	0.74
Pipe Jacking	Pumps	1	3.00	84	0.74
Pipe Jacking	Rubber Tired Loaders	1	8.00	203	0.36
Pipe Jacking	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipe Jacking	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving-2	Air Compressors	0	6.00	78	0.48
Paving-2	Paving Equipment	1	8.00	132	0.36
Paving-2	Plate Compactors	1	8.00	8	0.43
Paving-2	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Open Trench Pipe Installation	10	40.00	28.00	5,100.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Pipe Jacking	11	12.00	18.00	1,040.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	10.00	0.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Paving-2	3	12.00	10.00	0.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835		4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**		**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-003	0.3256	0.0522	4.2000e-004	0.0101	1.2000e-004	0.0102	2.5200e-003	1.2000e-004	2.6300e-003		45.2149	45.2149	6.5700e-003		45.3792
Vendor	0.0300	1.3992	0.3513	1.5100e-003	5.6500e-003	4.5000e-004	6.1000e-003	1.7000e-003	4.3000e-004	2.1300e-003		162.2857	162.2857	0.0233		162.8674
Worker	0.0334	9.7300e-003	0.1499	1.3000e-004	6.1700e-003	2.8000e-004	6.4500e-003	1.6900e-003	2.6000e-004	1.9400e-003		13.0001	13.0001	7.8000e-004		13.0195
Total	**0.0687**	**1.7345**	**0.5534**	**2.0600e-003**	**0.0219**	**8.5000e-004**	**0.0228**	**5.9100e-003**	**8.1000e-004**	**6.7000e-003**		**220.5007**	**220.5007**	**0.0306**		**221.2661**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3459	20.4027	22.0855	0.0434		0.9250	0.9250		0.8835	0.8835	0.0000	4,122.0926	4,122.0926	0.8532		4,143.4229
Total	**2.3459**	**20.4027**	**22.0855**	**0.0434**		**0.9250**	**0.9250**		**0.8835**	**0.8835**	**0.0000**	**4,122.0926**	**4,122.0926**	**0.8532**		**4,143.4229**

3.2 Open Trench Pipe Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-003	0.3256	0.0522	4.2000e-004	0.0101	1.2000e-004	0.0102	2.5200e-003	1.2000e-004	2.6300e-003		45.2149	45.2149	6.5700e-003		45.3792
Vendor	0.0300	1.3992	0.3513	1.5100e-003	5.6500e-003	4.5000e-004	6.1000e-003	1.7000e-003	4.3000e-004	2.1300e-003		162.2857	162.2857	0.0233		162.8674
Worker	0.0334	9.7300e-003	0.1499	1.3000e-004	6.1700e-003	2.8000e-004	6.4500e-003	1.6900e-003	2.6000e-004	1.9400e-003		13.0001	13.0001	7.8000e-004		13.0195
Total	**0.0687**	**1.7345**	**0.5534**	**2.0600e-003**	**0.0219**	**8.5000e-004**	**0.0228**	**5.9100e-003**	**8.1000e-004**	**6.7000e-003**		**220.5007**	**220.5007**	**0.0306**		**221.2661**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777		4,122.3782	4,122.3782	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**		**4,122.3782**	**4,122.3782**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1900e-003	0.3226	0.0516	4.1000e-004	2.7100e-003	1.1000e-004	2.8200e-003	7.0000e-004	1.1000e-004	8.0000e-004		44.7140	44.7140	6.3500e-003		44.8729
Vendor	0.0287	1.3940	0.3342	1.4900e-003	5.6500e-003	4.1000e-004	6.0600e-003	1.7000e-003	3.9000e-004	2.0900e-003		160.6754	160.6754	0.0225		161.2370
Worker	0.0309	8.7100e-003	0.1372	1.3000e-004	6.1700e-003	2.8000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.5575	12.5575	7.0000e-004		12.5749
Total	**0.0648**	**1.7253**	**0.5230**	**2.0300e-003**	**0.0145**	**8.0000e-004**	**0.0153**	**4.0900e-003**	**7.5000e-004**	**4.8300e-003**		**217.9469**	**217.9469**	**0.0295**		**218.6848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2033	18.8454	21.9674	0.0434		0.8149	0.8149		0.7777	0.7777	0.0000	4,122.3781	4,122.3781	0.8473		4,143.5603
Total	**2.2033**	**18.8454**	**21.9674**	**0.0434**		**0.8149**	**0.8149**		**0.7777**	**0.7777**	**0.0000**	**4,122.3781**	**4,122.3781**	**0.8473**		**4,143.5603**

3.2 Open Trench Pipe Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1900e-003	0.3226	0.0516	4.1000e-004	2.7100e-003	1.1000e-004	2.8200e-003	7.0000e-004	1.1000e-004	8.0000e-004		44.7140	44.7140	6.3500e-003		44.8729
Vendor	0.0287	1.3940	0.3342	1.4900e-003	5.6500e-003	4.1000e-004	6.0600e-003	1.7000e-003	3.9000e-004	2.0900e-003		160.6754	160.6754	0.0225		161.2370
Worker	0.0309	8.7100e-003	0.1372	1.3000e-004	6.1700e-003	2.8000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.5575	12.5575	7.0000e-004		12.5749
Total	**0.0648**	**1.7253**	**0.5230**	**2.0300e-003**	**0.0145**	**8.0000e-004**	**0.0153**	**4.0900e-003**	**7.5000e-004**	**4.8300e-003**		**217.9469**	**217.9469**	**0.0295**		**218.6848**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0900e-003	0.3197	0.0512	4.1000e-004	2.7200e-003	1.0000e-004	2.8200e-003	7.0000e-004	1.0000e-004	7.9000e-004		44.2039	44.2039	6.1400e-003		44.3574
Vendor	0.0276	1.3880	0.3210	1.4800e-003	5.6500e-003	3.8000e-004	6.0300e-003	1.7000e-003	3.6000e-004	2.0600e-003		158.9988	158.9988	0.0217		159.5408
Worker	0.0288	7.8300e-003	0.1259	1.2000e-004	6.1700e-003	2.7000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.0768	12.0768	6.2000e-004		12.0924
Total	**0.0614**	**1.7156**	**0.4981**	**2.0100e-003**	**0.0145**	**7.5000e-004**	**0.0153**	**4.0900e-003**	**7.1000e-004**	**4.7900e-003**		**215.2795**	**215.2795**	**0.0284**		**215.9906**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0900e-003	0.3197	0.0512	4.1000e-004	2.7200e-003	1.0000e-004	2.8200e-003	7.0000e-004	1.0000e-004	7.9000e-004		44.2039	44.2039	6.1400e-003		44.3574
Vendor	0.0276	1.3880	0.3210	1.4800e-003	5.6500e-003	3.8000e-004	6.0300e-003	1.7000e-003	3.6000e-004	2.0600e-003		158.9988	158.9988	0.0217		159.5408
Worker	0.0288	7.8300e-003	0.1259	1.2000e-004	6.1700e-003	2.7000e-004	6.4400e-003	1.6900e-003	2.5000e-004	1.9400e-003		12.0768	12.0768	6.2000e-004		12.0924
Total	**0.0614**	**1.7156**	**0.4981**	**2.0100e-003**	**0.0145**	**7.5000e-004**	**0.0153**	**4.0900e-003**	**7.1000e-004**	**4.7900e-003**		**215.2795**	**215.2795**	**0.0284**		**215.9906**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0000e-003	0.3170	0.0512	4.0000e-004	2.7200e-003	9.0000e-005	2.8100e-003	7.0000e-004	9.0000e-005	7.9000e-004		43.7101	43.7101	5.9400e-003		43.8585
Vendor	0.0266	1.3820	0.3108	1.4600e-003	5.6500e-003	3.5000e-004	6.0000e-003	1.7000e-003	3.3000e-004	2.0300e-003		157.3739	157.3739	0.0210		157.8979
Worker	0.0269	7.0800e-003	0.1162	1.2000e-004	6.1700e-003	2.7000e-004	6.4300e-003	1.6900e-003	2.5000e-004	1.9300e-003		11.6512	11.6512	5.6000e-004		11.6653
Total	**0.0585**	**1.7061**	**0.4782**	**1.9800e-003**	**0.0145**	**7.1000e-004**	**0.0152**	**4.0900e-003**	**6.7000e-004**	**4.7500e-003**		**212.7352**	**212.7352**	**0.0275**		**213.4217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0000e-003	0.3170	0.0512	4.0000e-004	2.7200e-003	9.0000e-005	2.8100e-003	7.0000e-004	9.0000e-005	7.9000e-004		43.7101	43.7101	5.9400e-003		43.8585
Vendor	0.0266	1.3820	0.3108	1.4600e-003	5.6500e-003	3.5000e-004	6.0000e-003	1.7000e-003	3.3000e-004	2.0300e-003		157.3739	157.3739	0.0210		157.8979
Worker	0.0269	7.0800e-003	0.1162	1.2000e-004	6.1700e-003	2.7000e-004	6.4300e-003	1.6900e-003	2.5000e-004	1.9300e-003		11.6512	11.6512	5.6000e-004		11.6653
Total	**0.0585**	**1.7061**	**0.4782**	**1.9800e-003**	**0.0145**	**7.1000e-004**	**0.0152**	**4.0900e-003**	**6.7000e-004**	**4.7500e-003**		**212.7352**	**212.7352**	**0.0275**		**213.4217**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9300e-003	0.3146	0.0513	4.0000e-004	2.7200e-003	8.0000e-005	2.8000e-003	7.0000e-004	8.0000e-005	7.8000e-004		43.3101	43.3101	5.7400e-003		43.4537
Vendor	0.0259	1.3768	0.3029	1.4500e-003	5.6500e-003	3.2000e-004	5.9700e-003	1.7000e-003	3.0000e-004	2.0100e-003		156.0494	156.0494	0.0203		156.5562
Worker	0.0251	6.4200e-003	0.1076	1.1000e-004	6.1700e-003	2.6000e-004	6.4200e-003	1.6900e-003	2.4000e-004	1.9200e-003		11.2709	11.2709	5.1000e-004		11.2836
Total	**0.0559**	**1.6978**	**0.4619**	**1.9600e-003**	**0.0145**	**6.6000e-004**	**0.0152**	**4.0900e-003**	**6.2000e-004**	**4.7100e-003**		**210.6304**	**210.6304**	**0.0265**		**211.2935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9300e-003	0.3146	0.0513	4.0000e-004	2.7200e-003	8.0000e-005	2.8000e-003	7.0000e-004	8.0000e-005	7.8000e-004		43.3101	43.3101	5.7400e-003		43.4537
Vendor	0.0259	1.3768	0.3029	1.4500e-003	5.6500e-003	3.2000e-004	5.9700e-003	1.7000e-003	3.0000e-004	2.0100e-003		156.0494	156.0494	0.0203		156.5562
Worker	0.0251	6.4200e-003	0.1076	1.1000e-004	6.1700e-003	2.6000e-004	6.4200e-003	1.6900e-003	2.4000e-004	1.9200e-003		11.2709	11.2709	5.1000e-004		11.2836
Total	**0.0559**	**1.6978**	**0.4619**	**1.9600e-003**	**0.0145**	**6.6000e-004**	**0.0152**	**4.0900e-003**	**6.2000e-004**	**4.7100e-003**		**210.6304**	**210.6304**	**0.0265**		**211.2935**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707		4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**		**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.8700e-003	0.3125	0.0516	3.9000e-004	9.4200e-003	8.0000e-005	9.4900e-003	2.3400e-003	7.0000e-005	2.4200e-003		42.9358	42.9358	5.5600e-003		43.0749
Vendor	0.0252	1.3711	0.2967	1.4300e-003	5.6500e-003	3.0000e-004	5.9500e-003	1.7000e-003	2.8000e-004	1.9800e-003		154.8101	154.8101	0.0196		155.3012
Worker	0.0234	5.8400e-003	0.1002	1.1000e-004	6.1700e-003	2.4000e-004	6.4100e-003	1.6900e-003	2.2000e-004	1.9100e-003		10.9312	10.9312	4.6000e-004		10.9427
Total	**0.0535**	**1.6894**	**0.4485**	**1.9300e-003**	**0.0212**	**6.2000e-004**	**0.0219**	**5.7300e-003**	**5.7000e-004**	**6.3100e-003**		**208.6771**	**208.6771**	**0.0257**		**209.3187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0540	17.1240	21.8501	0.0434		0.7032	0.7032		0.6707	0.6707	0.0000	4,122.8745	4,122.8745	0.8411		4,143.9007
Total	**2.0540**	**17.1240**	**21.8501**	**0.0434**		**0.7032**	**0.7032**		**0.6707**	**0.6707**	**0.0000**	**4,122.8745**	**4,122.8745**	**0.8411**		**4,143.9007**

3.2 Open Trench Pipe Installation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.8700e-003	0.3125	0.0516	3.9000e-004	9.4200e-003	8.0000e-005	9.4900e-003	2.3400e-003	7.0000e-005	2.4200e-003		42.9358	42.9358	5.5600e-003		43.0749
Vendor	0.0252	1.3711	0.2967	1.4300e-003	5.6500e-003	3.0000e-004	5.9500e-003	1.7000e-003	2.8000e-004	1.9800e-003		154.8101	154.8101	0.0196		155.3012
Worker	0.0234	5.8400e-003	0.1002	1.1000e-004	6.1700e-003	2.4000e-004	6.4100e-003	1.6900e-003	2.2000e-004	1.9100e-003		10.9312	10.9312	4.6000e-004		10.9427
Total	**0.0535**	**1.6894**	**0.4485**	**1.9300e-003**	**0.0212**	**6.2000e-004**	**0.0219**	**5.7300e-003**	**5.7000e-004**	**6.3100e-003**		**208.6771**	**208.6771**	**0.0257**		**209.3187**

3.3 Pipe Jacking - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5300e-003	0.0962	0.0154	1.2000e-004	5.7600e-003	3.0000e-005	5.7900e-003	1.4200e-003	3.0000e-005	1.4500e-003		13.2958	13.2958	1.8500e-003		13.3420
Vendor	0.0177	0.8923	0.2063	9.5000e-004	3.6300e-003	2.4000e-004	3.8700e-003	1.0900e-003	2.3000e-004	1.3300e-003		102.2135	102.2135	0.0139		102.5620
Worker	8.6300e-003	2.3500e-003	0.0378	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	8.0000e-005	5.8000e-004		3.6230	3.6230	1.9000e-004		3.6277
Total	**0.0279**	**0.9908**	**0.2595**	**1.1100e-003**	**0.0112**	**3.5000e-004**	**0.0116**	**3.0200e-003**	**3.4000e-004**	**3.3600e-003**		**119.1324**	**119.1324**	**0.0160**		**119.5317**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5300e-003	0.0962	0.0154	1.2000e-004	5.7600e-003	3.0000e-005	5.7900e-003	1.4200e-003	3.0000e-005	1.4500e-003		13.2958	13.2958	1.8500e-003		13.3420
Vendor	0.0177	0.8923	0.2063	9.5000e-004	3.6300e-003	2.4000e-004	3.8700e-003	1.0900e-003	2.3000e-004	1.3300e-003		102.2135	102.2135	0.0139		102.5620
Worker	8.6300e-003	2.3500e-003	0.0378	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	8.0000e-005	5.8000e-004		3.6230	3.6230	1.9000e-004		3.6277
Total	**0.0279**	**0.9908**	**0.2595**	**1.1100e-003**	**0.0112**	**3.5000e-004**	**0.0116**	**3.0200e-003**	**3.4000e-004**	**3.3600e-003**		**119.1324**	**119.1324**	**0.0160**		**119.5317**

3.3 Pipe Jacking - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5000e-003	0.0953	0.0154	1.2000e-004	5.8000e-004	3.0000e-005	6.1000e-004	1.5000e-004	3.0000e-005	1.8000e-004		13.1473	13.1473	1.7900e-003		13.1920
Vendor	0.0171	0.8885	0.1998	9.4000e-004	3.6300e-003	2.2000e-004	3.8500e-003	1.0900e-003	2.1000e-004	1.3100e-003		101.1689	101.1689	0.0135		101.5058
Worker	8.0600e-003	2.1200e-003	0.0349	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.4954	3.4954	1.7000e-004		3.4996
Total	**0.0267**	**0.9859**	**0.2501**	**1.1000e-003**	**6.0600e-003**	**3.3000e-004**	**6.3900e-003**	**1.7500e-003**	**3.1000e-004**	**2.0700e-003**		**117.8116**	**117.8116**	**0.0154**		**118.1973**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5000e-003	0.0953	0.0154	1.2000e-004	5.8000e-004	3.0000e-005	6.1000e-004	1.5000e-004	3.0000e-005	1.8000e-004		13.1473	13.1473	1.7900e-003		13.1920
Vendor	0.0171	0.8885	0.1998	9.4000e-004	3.6300e-003	2.2000e-004	3.8500e-003	1.0900e-003	2.1000e-004	1.3100e-003		101.1689	101.1689	0.0135		101.5058
Worker	8.0600e-003	2.1200e-003	0.0349	4.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.4954	3.4954	1.7000e-004		3.4996
Total	**0.0267**	**0.9859**	**0.2501**	**1.1000e-003**	**6.0600e-003**	**3.3000e-004**	**6.3900e-003**	**1.7500e-003**	**3.1000e-004**	**2.0700e-003**		**117.8116**	**117.8116**	**0.0154**		**118.1973**

3.3 Pipe Jacking - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4800e-003	0.0946	0.0154	1.2000e-004	5.8000e-004	3.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.8000e-004		13.0270	13.0270	1.7300e-003		13.0702
Vendor	0.0166	0.8851	0.1947	9.3000e-004	3.6300e-003	2.0000e-004	3.8400e-003	1.0900e-003	2.0000e-004	1.2900e-003		100.3175	100.3175	0.0130		100.6433
Worker	7.5300e-003	1.9300e-003	0.0323	3.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.3813	3.3813	1.5000e-004		3.3851
Total	**0.0256**	**0.9816**	**0.2424**	**1.0800e-003**	**6.0600e-003**	**3.1000e-004**	**6.3800e-003**	**1.7500e-003**	**2.9000e-004**	**2.0500e-003**		**116.7257**	**116.7257**	**0.0149**		**117.0985**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4800e-003	0.0946	0.0154	1.2000e-004	5.8000e-004	3.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.8000e-004		13.0270	13.0270	1.7300e-003		13.0702
Vendor	0.0166	0.8851	0.1947	9.3000e-004	3.6300e-003	2.0000e-004	3.8400e-003	1.0900e-003	2.0000e-004	1.2900e-003		100.3175	100.3175	0.0130		100.6433
Worker	7.5300e-003	1.9300e-003	0.0323	3.0000e-005	1.8500e-003	8.0000e-005	1.9300e-003	5.1000e-004	7.0000e-005	5.8000e-004		3.3813	3.3813	1.5000e-004		3.3851
Total	**0.0256**	**0.9816**	**0.2424**	**1.0800e-003**	**6.0600e-003**	**3.1000e-004**	**6.3800e-003**	**1.7500e-003**	**2.9000e-004**	**2.0500e-003**		**116.7257**	**116.7257**	**0.0149**		**117.0985**

3.3 Pipe Jacking - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086		4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**		**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4700e-003	0.0940	0.0155	1.2000e-004	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.8000e-004		12.9144	12.9144	1.6700e-003		12.9563
Vendor	0.0162	0.8814	0.1908	9.2000e-004	3.6300e-003	1.9000e-004	3.8200e-003	1.0900e-003	1.8000e-004	1.2800e-003		99.5208	99.5208	0.0126		99.8365
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0247**	**0.9771**	**0.2363**	**1.0700e-003**	**6.0700e-003**	**2.8000e-004**	**6.3500e-003**	**1.7500e-003**	**2.7000e-004**	**2.0300e-003**		**115.7146**	**115.7146**	**0.0144**		**116.0755**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1613	18.0338	23.2434	0.0458		0.7410	0.7410		0.7086	0.7086	0.0000	4,356.5125	4,356.5125	0.8505		4,377.7751
Total	**2.1613**	**18.0338**	**23.2434**	**0.0458**		**0.7410**	**0.7410**		**0.7086**	**0.7086**	**0.0000**	**4,356.5125**	**4,356.5125**	**0.8505**		**4,377.7751**

3.3 Pipe Jacking - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4700e-003	0.0940	0.0155	1.2000e-004	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.8000e-004		12.9144	12.9144	1.6700e-003		12.9563
Vendor	0.0162	0.8814	0.1908	9.2000e-004	3.6300e-003	1.9000e-004	3.8200e-003	1.0900e-003	1.8000e-004	1.2800e-003		99.5208	99.5208	0.0126		99.8365
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0247**	**0.9771**	**0.2363**	**1.0700e-003**	**6.0700e-003**	**2.8000e-004**	**6.3500e-003**	**1.7500e-003**	**2.7000e-004**	**2.0300e-003**		**115.7146**	**115.7146**	**0.0144**		**116.0755**

3.4 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0100e-003	0.4897	0.1060	5.1000e-004	2.0200e-003	1.1000e-004	2.1200e-003	6.1000e-004	1.0000e-004	7.1000e-004		55.2893	55.2893	7.0100e-003		55.4647
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0160**	**0.4914**	**0.1360**	**5.4000e-004**	**3.8700e-003**	**1.8000e-004**	**4.0400e-003**	**1.1200e-003**	**1.7000e-004**	**1.2800e-003**		**58.5687**	**58.5687**	**7.1500e-003**		**58.7475**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.4 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0100e-003	0.4897	0.1060	5.1000e-004	2.0200e-003	1.1000e-004	2.1200e-003	6.1000e-004	1.0000e-004	7.1000e-004		55.2893	55.2893	7.0100e-003		55.4647
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0160**	**0.4914**	**0.1360**	**5.4000e-004**	**3.8700e-003**	**1.8000e-004**	**4.0400e-003**	**1.1200e-003**	**1.7000e-004**	**1.2800e-003**		**58.5687**	**58.5687**	**7.1500e-003**		**58.7475**

3.5 Paving-2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341		682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**		**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0100e-003	0.4897	0.1060	5.1000e-004	2.0200e-003	1.1000e-004	2.1200e-003	6.1000e-004	1.0000e-004	7.1000e-004		55.2893	55.2893	7.0100e-003		55.4647
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0160**	**0.4914**	**0.1360**	**5.4000e-004**	**3.8700e-003**	**1.8000e-004**	**4.0400e-003**	**1.1200e-003**	**1.7000e-004**	**1.2800e-003**		**58.5687**	**58.5687**	**7.1500e-003**		**58.7475**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3239	2.9590	4.6037	7.1800e-003		0.1449	0.1449		0.1341	0.1341	0.0000	682.8587	682.8587	0.2133		688.1907
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3239**	**2.9590**	**4.6037**	**7.1800e-003**		**0.1449**	**0.1449**		**0.1341**	**0.1341**	**0.0000**	**682.8587**	**682.8587**	**0.2133**		**688.1907**

3.5 Paving-2 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0100e-003	0.4897	0.1060	5.1000e-004	2.0200e-003	1.1000e-004	2.1200e-003	6.1000e-004	1.0000e-004	7.1000e-004		55.2893	55.2893	7.0100e-003		55.4647
Worker	7.0300e-003	1.7500e-003	0.0301	3.0000e-005	1.8500e-003	7.0000e-005	1.9200e-003	5.1000e-004	7.0000e-005	5.7000e-004		3.2794	3.2794	1.4000e-004		3.2828
Total	**0.0160**	**0.4914**	**0.1360**	**5.4000e-004**	**3.8700e-003**	**1.8000e-004**	**4.0400e-003**	**1.1200e-003**	**1.7000e-004**	**1.2800e-003**		**58.5687**	**58.5687**	**7.1500e-003**		**58.7475**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552029	0.041590	0.206227	0.111651	0.012966	0.005742	0.022236	0.037458	0.002178	0.001524	0.004915	0.000717	0.000767

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Emissions of Lead from Project Construction

Year	CO_2 (MT)[1]	kg CO_2 / gallon[2]	Gallons	Pb (lb/1000 gallon)[3]	Pb (lb)	Pb (ton)
2023	164.38	10.21	16,099.58	0.0083	0.13	0.0001
2024	660.62	10.21	64,703.27	0.0083	0.54	0.0003
2025	708.14	10.21	69,357.50	0.0083	0.58	0.0003
2026	1,247.88	10.21	122,220.90	0.0083	1.01	0.0005
2027	1,245.21	10.21	121,959.55	0.0083	1.01	0.0005
2028	772.45	10.21	75,656.69	0.0083	0.63	0.0003

Notes: [1] Emissions from CalEEMod 2016.3.2.

[2] Emission factor from The Climate Registry 2019 Default Emission Factors Table 13.1.

[3] Emission factor from Ventura County Air Pollution Control District AB2588 Combustion Emission Factors

ATTACHMENT 2

General Conformity Assessment

General Conformity for the De Soto Trunk Line Replacement Project

Under Section 176(c)(1) of the federal Clean Air Act, federal agencies that "engage in, support in any way or provide financial assistance for, license or permit, or approve any activity"[1] must demonstrate that such actions do not interfere with state and local plans to bring an area into attainment with the NAAQS. Specifically, the South Coast Air Basin is designated as nonattainment with respect to the NAQQS for ozone, CO, PM_{10}, and $PM_{2.5}$. The program by which a federal agency determines that its action would not obstruct or conflict with air quality attainment plans is called "general conformity." The implementing regulations for general conformity are found in Title 40, Code of Federal Regulations, Part 51, Subpart W. In addition, the SCAQMD has adopted the federal General Conformity regulations as Regulation XIX, Rule 1901.

Under the general conformity regulations, both the direct and indirect emissions associated with a federal action must be evaluated. Subpart W defines direct emissions as:

> *[T]hose emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and occur at the same time and place as the action.*

Indirect emissions are defined as:

> *[T]hose emissions of a criteria pollutant or its precursors that:*
>
> *(1) Are caused by the Federal action, but may occur later in time and/or may be farther removed in distance from the action itself but are still reasonably foreseeable; and*
>
> *(2) The Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency.*

A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a federal nonattainment or maintenance area would equal or exceed specified annual emission rates, referred to as "de minimis" thresholds or would be "regionally significant." A project's direct and indirect emissions are regionally significant if they exceed 10 percent or more of a nonattainment or maintenance area's emissions inventory for that pollutant. For ozone precursor and PM_{10}, the de minimis thresholds depend on the severity of the nonattainment classification; for other pollutants, the threshold is set at 100 tons per year. As indicated in Table 2 of Section 2.3.1, the South Coast Air Basin is designated as extreme nonattainment for ozone and serious nonattainment for $PM_{2.5}$. The relevant de minimis thresholds for the South Coast Air Basin are shown in Table 2-1.

---

[1] Title 40, Code of Federal Regulation, Part 51, Section 51.850.

Table 2-1
General Conformity De Minimis Thresholds

Pollutant	Attainment Status	Annual Emissions (ton/yr)
NO_X	Nonattainment/Extreme (Ozone)	10
VOC	Nonattainment/Extreme (Ozone)	10
PM_{10}	Attainment/Maintenance	100
$PM_{2.5}$ (direct)	Nonattainment/Serious	70
$PM_{2.5}$ (NO_X)[1]	Nonattainment/Serious	70
$PM_{2.5}$ (VOC and NH_3)[2]	Nonattainment/Serious	70
$PM_{2.5}$ (SO_X)	Nonattainment/Serious	70
CO	Attainment/Maintenance	100
Pb	Nonattainment	25

[1] NO_X is included unless determined not to be a significant precursor. However, the NO_X threshold based on its contribution to ozone is more stringent.

[2] VOC and ammonia (NH_3) are not included unless determined to be a significant precursor. However, the VOC threshold based on their contribution to ozone is more stringent. Ammonia would not be emitted as a result of the proposed action.

The resultant annual emissions for each construction year are shown in Table 2-2. Detailed emissions calculation methodology is found in Section 2.4.2 of the air quality technical report.

Table 2-2
Direct Annual Construction Emissions

Year	VOC (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	Pb (tons/yr)
2023	0.08	0.75	0.78	0.00	0.08	0.04	0.0001
2024	0.32	2.82	3.12	0.01	0.22	0.13	0.0003
2025	0.32	2.80	3.36	0.01	0.23	0.13	0.0003
2026	0.59	5.12	6.20	0.01	0.34	0.22	0.0005
2027	0.58	5.11	6.19	0.01	0.34	0.18	0.0005
2028	0.37	3.24	3.97	0.01	0.22	0.14	0.0003
Thresholds (tons/yr)	10	10	100	70	100	70	25
Exceeds Threshold?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

As shown in Table 2-2, the construction emissions in all years would be less than the de minimis thresholds. Thus, a general conformity determination would not be required, and this would not be considered an adverse impact.

The project would not generate any new emissions during operation as the operational activity would remain similar to what is currently occurring. Thus, further analysis is not required for these pollutants because their emissions would be less than the de minimis thresholds. Thus, the project would be in compliance with the general conformity requirements and would not conflict with local air quality attainment or maintenance plans to achieve or maintain federal ambient air quality standards.

ATTACHMENT 3

CO Hotspots Analysis

Attachment 3
CO Hotspots Screening Evaluation

To verify that the project would not cause or contribute to a violation of the CO standards, a screening evaluation of the potential for CO hotspots was conducted. The California Department of Transportation (Caltrans) and the U.C. Davis Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Caltrans 2010), and the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 2019) were followed. The CO Protocol recommends that a quantitative analysis of CO hotspots be performed if a) the project significantly increases the percentage of vehicles operating in cold start mode (greater than 2%), b) the project significantly increases traffic volumes (greater than 5%), and/or c) the project worsens traffic flow. In addition to consideration of whether the proposed project would worsen air quality, CO hotspots are typically evaluated when (1) the LOS of an intersection or roadway decreases to LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment.

The screening evaluation presents LOS with project improvements (mitigation), whether the recommended improvements (mitigation measures) are feasible, and whether a quantitative CO hotspots analysis may be required. According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings of the project, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing a screening test as described in this protocol, an additional intersection should be analyzed (Caltrans 2010).

Table 1 shows a summary of LOS and volume to capacity ratios for all 12 intersections evaluated for 2026.

Attachment 3 (Continued)

Table 1
Cumulative Year (2026) Peak Hour Levels of Service

No.	Intersection	Control Type	LOS Method	AM Peak		PM Peak	
				V/C	*LOS*	*V/C*	*LOS*
1.	De Soto Avenue/Devonshire Street	signalized	CMA	0.776	C	0.778	C
2.	Mason Avenue/ Devonshire Street	signalized	CMA	0.764	C	0.893	D
3.	Mason Avenue /Mayall Street	signalized	CMA	0.487	A	0.635	B
4.	Mason Avenue /Lassen Street	signalized	CMA	0.634	B	0.785	C
5.	Mason Avenue /Plummer Street	signalized	CMA	0.765	C	0.805	D
6.	Mason Avenue /Nordhoff Street	signalized	CMA	0.787	C	0.873	D
7.	Mason Avenue /Parthenia Street	signalized	CMA	0.943	E	0.885	D
8.	Mason Avenue /Chase Street	signalized	CMA	0.545	A	0.448	A
9.	Mason Avenue/Roscoe Boulevard	signalized	CMA	0.879	D	0.835	D
10.	Kelvin Avenue/Roscoe Boulevard	unsignalized	CMA	0.528	A	0.516	A
11.	De Soto Avenue/ Roscoe Boulevard	signalized	CMA	0.754	C	0.810	D
12.	De Soto Avenue/Victory Boulevard	signalized	CMA	0.988	E	0.993	E

Notes: LOS – Level of service; V/C – volume to capacity ratio.

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: De Soto&Victory 2026
              RUN: STANDARD RUN     (WORST CASE ANGLE)
        POLLUTANT: CO


  I.  SITE VARIABLES

         U=   1.0 M/S             Z0= 100. CM            ALT= 244.1 (M)
       BRG= WORST CASE            VD=  0.0 CM/S
      CLAS=     7 (G)             VS=  0.0 CM/S
      MIXH= 1000. M              AMB=  0.0 PPM
     SIGTH=   10. DEGREES       TEMP=  3.8 DEGREE (C)


 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (FT)  *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (FT)  (FT)
----------------*-------------------------*------------------------------
A. WBRA         *   500    36    30    36 *  AG    110   2.2    0.0  33.0
B. WBTA         *   500    18   -30    18 *  AG   1562   2.2    0.0  33.0
C. WBLA         *   500   -12   -18   -12 *  AG    619   2.2    0.0  33.0
D. WBD          *   -30    18  -500    18 *  AG   1896   2.2    0.0  33.0
E. EBLA         *  -500   -12    30   -12 *  AG     93   2.2    0.0  33.0
F. EBTA         *  -500   -54   -18   -54 *  AG    931   2.2    0.0  33.0
G. EBRA         *     0   -36   500   -36 *  AG     92   2.2    0.0  33.0
H. EBD          *    12  -500    12    18 *  AG   1542   2.2    0.0  33.0
I. NBLA         *    30  -500    30   -12 *  AG    103   2.2    0.0  33.0
J. NBTA         *    42  -500    42   -36 *  AG   1042   2.2    0.0  33.0
K. NBRA         *    30   -12    30   500 *  AG    395   2.2    0.0  33.0
L. NBD          *     0   500     0   -36 *  AG   1245   2.2    0.0  33.0
M. SBLA         *   -18   500   -18   -12 *  AG    216   2.2    0.0  33.0
N. SBTA         *   -30   500   -30    18 *  AG   1904   2.2    0.0  33.0
O. SBRA         *   -18   -12   -18  -500 *  AG    231   2.2    0.0  33.0
P. SBD          *  -500   -36     0   -36 *  AG   2615   2.2    0.0  33.0


III.  RECEPTOR LOCATIONS

            *    COORDINATES (FT)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. SR1      *    -40     25   5.9
2. SR2      *     40     40   5.9
3. SR3      *    -30    -60   5.9
4. SR4      *     50    -40   5.9
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   2

               JOB: De Soto&Victory 2026
               RUN: STANDARD RUN     (WORST CASE ANGLE)
         POLLUTANT: CO


  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                CONC/LINK
             *  BRG  * CONC  *                  (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. SR1      *   96. *   0.8 *  0.0  0.4  0.1  0.0  0.0  0.0  0.0  0.0
 2. SR2      *  255. *   0.6 *  0.0  0.1  0.0  0.1  0.0  0.0  0.0  0.0
 3. SR3      *    4. *   0.7 *  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0
 4. SR4      *  272. *   0.7 *  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.1


             *                CONC/LINK
             *                  (PPM)
  RECEPTOR   *   I    J    K    L    M    N    O    P
 ------------*----------------------------------------
 1. SR1      *  0.0  0.0  0.0  0.1  0.0  0.1  0.0  0.0
 2. SR2      *  0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.1
 3. SR3      *  0.0  0.0  0.0  0.1  0.0  0.2  0.0  0.2
 4. SR4      *  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.4
```

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: Mason&Parthenia 2026
              RUN: STANDARD RUN     (WORST CASE ANGLE)
        POLLUTANT: CO


  I.  SITE VARIABLES

         U=   1.0 M/S             Z0= 100. CM            ALT= 259.1 (M)
       BRG= WORST CASE            VD=  0.0 CM/S
      CLAS=     7 (G)             VS=  0.0 CM/S
      MIXH= 1000. M              AMB=  0.0 PPM
     SIGTH=   10. DEGREES       TEMP=  3.8 DEGREE (C)


 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (FT)  *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (FT)  (FT)
----------------*-------------------------*------------------------------
A. WBRA         *   500    36    30    36 *  AG    147   2.2    0.0  33.0
B. WBTA         *   500    18   -30    18 *  AG   1173   2.2    0.0  33.0
C. WBLA         *   500   -12   -18   -12 *  AG    129   2.2    0.0  33.0
D. WBD          *   -30    18  -500    18 *  AG   1404   2.2    0.0  33.0
E. EBLA         *  -500   -12    30   -12 *  AG     98   2.2    0.0  33.0
F. EBTA         *  -500   -54   -18   -54 *  AG    886   2.2    0.0  33.0
G. EBRA         *     0   -36   500   -36 *  AG     49   2.2    0.0  33.0
H. EBD          *    12  -500    12    18 *  AG   1049   2.2    0.0  33.0
I. NBLA         *    30  -500    30   -12 *  AG     51   2.2    0.0  33.0
J. NBTA         *    42  -500    42   -36 *  AG   1231   2.2    0.0  33.0
K. NBRA         *    30   -12    30   500 *  AG     81   2.2    0.0  33.0
L. NBD          *     0   500     0   -36 *  AG   1476   2.2    0.0  33.0
M. SBLA         *   -18   500   -18   -12 *  AG     82   2.2    0.0  33.0
N. SBTA         *   -30   500   -30    18 *  AG   1331   2.2    0.0  33.0
O. SBRA         *   -18   -12   -18  -500 *  AG    180   2.2    0.0  33.0
P. SBD          *  -500   -36     0   -36 *  AG   1509   2.2    0.0  33.0


III.  RECEPTOR LOCATIONS

            *    COORDINATES (FT)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. SR1      *    -40     25   5.9
2. SR2      *     40     40   5.9
3. SR3      *    -30    -60   5.9
4. SR4      *     50    -40   5.9
```

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   2

               JOB: Mason&Parthenia 2026
               RUN: STANDARD RUN     (WORST CASE ANGLE)
         POLLUTANT: CO


  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
  RECEPTOR    * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
-------------*-------*-------*----------------------------------------
 1. SR1      *   93. *   0.6 *  0.0  0.3  0.0  0.0  0.0  0.0  0.0  0.0
 2. SR2      *  256. *   0.5 *  0.0  0.1  0.0  0.1  0.0  0.0  0.0  0.0
 3. SR3      *    6. *   0.5 *  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0
 4. SR4      *  272. *   0.6 *  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.1


              *                 CONC/LINK
              *                   (PPM)
  RECEPTOR    *   I    J    K    L    M    N    O    P
 ------------*----------------------------------------
 1. SR1      *  0.0  0.0  0.0  0.1  0.0  0.1  0.0  0.0
 2. SR2      *  0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.1
 3. SR3      *  0.0  0.0  0.0  0.2  0.0  0.1  0.0  0.1
 4. SR4      *  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.2
```

APPENDIX B

Biological Technical Report

BIOLOGICAL TECHNICAL REPORT
DE SOTO TRUNK LINE PROJECT

Prepared for:

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E Wildlife Compendium
F Special-Status Plant Species Potential to Occur
G Special-Status Wildlife Species Potential to Occur
H Coastal California Gnatcatcher Survey Report

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
BCC	Bird of Conservation Concern
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
ERDIP	earthquake resistant ductile iron pipe
FESA	federal Endangered Species Act
IPaC	Information for Planning and Conservation System
LADPW	Los Angeles Department of Public Works
LADWP	Los Angeles Department of Water and Power
MBTA	Migratory Bird Treaty Act
NCCP	Natural Community Conservation Plan
NRCS	National Resources Conservation Service
OHWM	Ordinary High Water Mark
SSC	Species of Special Concern
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WSP	welded steel pipe

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1 INTRODUCTION

This biological technical report describes the existing biological conditions of the De Soto Trunk Line Project (project) proposed by the Los Angeles Department of Water and Power (LADWP). The biological evaluation includes a 300-foot buffer surrounding the project site (herein referred to as the "action area"), and spans across the neighborhoods of Chatsworth, Canoga Park, Winnetka, and Woodland Hills in the northwestern City of Los Angeles (City), Los Angeles County, California (Figure 1). The project consists of installing approximately 2,700 feet of 54-inch-diameter welded steel pipe (WSP) and earthquake resistant ductile iron pipe (ERDIP) along Devonshire Street from De Soto Avenue to Mason Avenue; approximately 13,500 feet of 54-inch-diameter WSP and ERDIP along Mason Avenue from Devonshire Street to Roscoe Boulevard; approximately 2,700 feet of 48-inch-diameter WSP and ERDIP along Roscoe Boulevard from Mason Avenue to De Soto Avenue; and approximately 900 feet of 36-inch-diameter WSP at the intersection of De Soto Avenue and Victory Boulevard.

LADWP may pursue funding for the project through the State Water Resources Control Board's Drinking Water State Revolving Fund. The Drinking Water State Revolving Fund Program receives partial funding from the U.S. Environmental Protection Agency. As such, projects pursuing funding from the Drinking Water State Revolving Fund are required to comply with requirements of the federal authorities and environmental statutes, including Section 7 of the federal Endangered Species Act (FESA) and the Migratory Bird Treaty Act (MBTA), and a biological resources assessment is required to be provided as per the requirements of the Drinking Water State Revolving Fund Environmental Package application. As such, this biological technical report (1) describes the existing conditions of biological resources within the project action area in terms of vegetation, flora, wildlife, and wildlife habitats (including U.S. Fish and Wildlife Service (USFWS) designated critical habitat); (2) describes potential direct and indirect impacts to biological resources that would result from implementation of the proposed action, and describes those impacts in terms of biological significance in view of federal, state, and local laws and policies (including the California Environmental Quality Act (CEQA)); and (3) provides a discussion of the potential impacts associated with the proposed action.

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2 PROJECT SETTING

A project action area encompassing the project site and an area 300 feet from the project site was created to evaluate biological resources potentially present, as well as potential direct and indirect impacts to those biological resources. The project is located within a heavily urbanized area dominated by residential, commercial, and industrial development. Vegetation cover within the action area is predominantly composed of ornamental plantings and landscaping, with minimal native vegetation remaining. The project alignment crosses the Union Pacific Railroad tracks, the Orange Line Busway, and Browns Creek Channel. A small portion of the alignment at the De Soto Avenue/Victory Boulevard intersection extends alongside Kelvin Channel. In the project area, both Browns Creek Channel and Kelvin Channel are concrete-lined channels that are maintained by the Los Angeles County Flood Control District.

2.1 Project Location

The project site is located within the western portion of the San Fernando Valley within the City of Los Angeles, Los Angeles County, California (Figure 1). The entire project is located within the Oat Mountain and Canoga Park 7.5-Minute U.S. Geological Survey (USGS) quadrangles. At its northern extent, the project alignment begins at the intersection of De Soto Avenue and Devonshire Street, extending 2,700 feet (0.5 mile) along Devonshire Street before turning south onto Mason Avenue. The alignment then extends approximately 13,500 feet (2.6 miles) south along Mason Avenue, until it reaches Roscoe Boulevard. At the Mason Avenue/Roscoe Boulevard intersection, the alignment turns to the west, extending approximately 2,700 feet (0.5 mile) along Roscoe Boulevard before terminating at De Soto Avenue. The project also includes some pipeline work at the intersection of De Soto Avenue and Victory Boulevard, which is located approximately two miles south of the De Soto Avenue/Roscoe Boulevard intersection. Collectively, the areas where new pipelines are proposed will be termed “project alignment” in this report. The project would also involve pipeline abandonment along De Soto Avenue (from Devonshire Street to Roscoe Boulevard), along Roscoe Boulevard (from Mason Avenue to De Soto Avenue), and at the De Soto Avenue/Victory Boulevard intersection. Pipeline abandonment would involve filling the old pipe with cement slurry. This would require construction activity at the tie-in locations (i.e., the intersections of De Soto Avenue/Devonshire Street, De Soto Avenue/Roscoe Boulevard, Mason Avenue/Roscoe Boulevard, and De Soto Avenue/Victory Boulevard). The project also includes an approximate 1.3-acre staging area immediately east of De Soto Avenue and south of State Route 118 (SR-118) within the LADWP De Soto Reservoir property.

2.2 Project Description

The replacement pipe would be installed within existing public right-of-way along the proposed alignment. Underground gas lines, water lines, fiber optics, and power lines may require relocation.

Utility relocations would be accommodated within the proposed alignment (i.e., they would not result in additional impacts outside of the trunk line replacement boundaries). Some driveways may be temporarily blocked during project construction. The De Soto Reservoir property located to the north of the proposed project's northern terminus may also be used as a construction staging area for long-term storage. The De Soto Reservoir property is owned by LADWP and is currently used for water storage purposes. This area will be referred to as the "potential staging area." No permanent land use changes would occur at the potential staging area as part of this project. Therefore, this area is analyzed in this report relative to temporary construction impacts only.

Construction of the proposed project would occur along the existing public right-of-way of Devonshire Street, Mason Avenue, Roscoe Boulevard, De Soto Avenue, and Victory Boulevard using open-trench and pipe-jacking construction methods. Figure 2 shows which portions of the project would be installed using open-trench methods and which portions would be installed with pipe jacking. The general process for both open-trench and pipe-jacking construction methods consists of utility clearance/mark-out activities, site preparation, excavation, shoring, pipe installation, backfilling, and work area street restoration. Both construction methods would require on-site and off-site staging areas to temporarily store supplies and materials. Off-site staging areas would generally consist of the De Soto Reservoir laydown area shown on Figure 1 and the sidewalks along Devonshire Street, Mason Avenue, Roscoe Boulevard, De Soto Avenue, and Victory Boulevard. Approximately 300,000 square feet of roadway would be repaved along the entirety of the alignment.

Open-Trench Excavation

Open-trench excavation is a construction method typically used to install pipelines and their appurtenances. In general, the process consists of site preparation, excavation and shoring, pipe installation and backfilling, and work site restoration. Construction would occur within the public right-of-way, within an approximately 1,000-foot-long work area. A trench would be excavated along the alignment using backhoes, excavators, or other types of excavation equipment. Portions of the trench adjacent to utilities may be manually excavated. Excavated soil would be reused as backfill material or hauled off site. Any portion of the roadway damaged as a result of construction activities would be repaved and restored in accordance with all applicable City of Los Angeles Department of Public Works standards.

Pipe-Jacking Methods

Pipe jacking, which is a form of tunneling, would be used to reduce traffic disruptions at busy intersections and to extend underneath features along the alignment that would not be suitable for open-trench construction. The installation of pipelines using pipe jacking would avoid the continuous surface disruption that would be required for open-trench construction. However, some surface disruption would still occur, since "jacking" and "receiving" pits would be used and would be excavated along the project alignment. After completion of the pipe installation along the jacking locations, the shoring system would be disassembled as the pits are backfilled, the soil would be compacted, and pavement would be restored.

Hydrostatic Testing and Pipeline Disinfection

Hydrostatic testing would be conducted periodically throughout construction. Approximately 3,000 linear feet of new pipeline would be tested at a time. Once hydrostatic testing is completed, the new pipelines would be disinfected. Hydrostatic test water and disinfectant water would be discharged to the sewer system or the storm drain system in accordance with State Water Resources Control Board permit requirements

2.3 Operations and Maintenance

The proposed replacement pipelines are anticipated to have an operational life of 100 years, and replacement valves are anticipated to have an operational life of 50 years. The pipelines would be underground and would not be visible from the ground level during operation. Several 6-inch air/vacuum valves would be installed along the sidewalks, spaced at various intervals along the alignment. (Air/vacuum valves are installed at local high points along the pipe alignment in order to keep all air out of the pipe. Air/vacuums have dimensions similar to those of a typical fire hydrant and are common sidewalk appurtenances in urban areas.)

Operational activities would be limited to scheduled maintenance and repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions. Maintenance would include exercising valves and replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities. No permanent workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance would, therefore, be minimal.

2.4 Best Practices

To reduce traffic and transportation impacts, the construction of the proposed project would be conducted in accordance with the Standard Specifications for Public Works Construction (Greenbook), and traffic control plans designed or approved by LADOT, to allow acceptable levels of service, traffic safety, and emergency access to the site during construction. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-Rails. The Traffic Control Plan for the proposed project would be coordinated with LADOT. Other construction practices would include dust control and noise control. Dust control would involve use of a water truck during construction activities that would expose soils. Noise control activities would include installation of temporary sound barrier walls as appropriate to comply with the City of Los Angeles Noise Ordinance.

Proper drainage would prevent stagnant water and flooding within the work area. If excessive runoff water is anticipated due to a construction activity or rainfall, sandbags or other methods would be implemented in accordance with stormwater regulations.

3 REGULATORY CONTEXT

This section describes the regulatory framework relevant for the project.

3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. FESA is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and to provide programs for the conservation of those species, preventing extinction of plants and wildlife. FESA defines an endangered species as “any species that is in danger of extinction throughout all or a significant portion of its range” (16 U.S.C. 1531 et seq.). A threatened species is defined as “any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” (16 U.S.C. 1531 et seq.). Under FESA, it is unlawful to take any listed species; “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 U.S.C. 1531 et seq.).

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Upon development of a habitat conservation plan, USFWS can issue incidental take permits for listed species.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act, ACOE regulates the discharge of dredged and/or fill material into waters of the United States. The term “wetlands” (a subset of waters) is defined in Title 33, Section 328.3(b), of the Code of Federal Regulations as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark, as defined in Title 33, Section 328.3(e), of the Code of Federal Regulations. Pursuant to Section 10 of the Rivers and Harbors Act of 1899, ACOE regulates any potential obstruction or alteration of any navigable water of the United States.

Migratory Bird Treaty Act

The MBTA was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others (16 U.S.C. 703–712). Each of the treaties protects selected species of birds and provides for closed and open seasons for hunting game birds. The MBTA protects more than 800 species. Two species of eagles that are native to the United States—bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*)—were granted additional protection within the United States under the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d) to prevent these species from becoming extinct.

3.2 State

California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (California Fish and Game Code, Section 86). CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy" (California Fish and Game Code, Section 2053).

CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease" (California Fish and Game Code, Section 2050 et seq.). CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the [California Fish and Game] Commission as rare on or before January 1, 1985, is a threatened species" (California Fish and Game Code, Section 2050 et seq.). A candidate species is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the

Commission has published a notice of proposed regulation to add the species to either list" (California Fish and Game Code, Section 2050 et seq.). CESA does not list invertebrate species.

California Fish and Game Code, Sections 3503, 3511, 3513, 3801, 4700, 5050, and 5515

Section 2081(b) and (c) of the California Fish and Game Code authorizes take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, Section 2080.1 of CESA allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own, based on its findings that the federal permit adequately protects the species and is consistent with state law. A Section 2081(b) permit may not authorize the take of "fully protected" species or "specified birds" (California Fish and Game Code, Sections 3505, 3511, 4700, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid take.

California Fish and Game Code, Sections 1600–1602

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A streambed alteration agreement is required for impacts to jurisdictional wetlands in accordance with Section 1602 of the California Fish and Game Code.

CEQA

CEQA requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. CEQA also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Because LADWP may seek funding for the project from the State Water Resources Control Board (State Water Board), the project is also being reviewed in accordance with CEQA+, a process that consists of CEQA and any required federal cross-cutting studies. The CEQA+ process is required by the State Water Board to satisfy the environmental requirements of its Operating Agreement with the U.S. Environmental Protection Agency. In the event that State Water Board funding is requested, this biological technical report would be part of an environmental package that may be submitted to the State Water Board as part of the funding application to fulfill CEQA+ requirements.

Special-Status Plants and Wildlife

The CEQA Guidelines define endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (14 CCR 15380(b)(1)). A rare animal or plant is defined in CEQA Guidelines, Section 15380(b)(2), as a species that, although not currently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or . . . [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act" (14 CCR 15380(b)(2)). Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing as defined further in CEQA Guidelines, Section 15380(c).

Special-Status Vegetation Communities

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines (14 CCR 15000 et seq.) requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game[1] or the U.S. Fish and Wildlife Service."

3.3 Local Regulations

City of Los Angeles Protected Tree Ordinance

To ensure the protection of, and to further regulate the removal of, protected trees, a tree inventory and assessment of the project site was performed pursuant to City Ordinance No. 177404 (City of Los Angeles 2006a). The Protected Tree Ordinance defines a protected tree as any of the following Southern California native species that measures 4 inches or more in cumulative diameter, 4.5 feet above the ground level at the base of the tree (City of Los Angeles 2006a):

- Oak tree, including valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California, but excluding scrub oak (*Quercus dumosa*)
- Southern California black walnut (*Juglans californica* var. *californica*)
- California sycamore (*Platanus racemosa*)
- California bay (*Umbellularia californica*)

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[1] Effective January 1, 2013, the California Department of Fish and Game changed its name to the California Department of Fish and Wildlife.

4 METHODS

Data regarding biological and general jurisdictional resources present within the action area were obtained through a review of pertinent literature and field reconnaissance, as described below.

4.1 Literature Reviewed

Prior to conducting the field investigation, a literature review was conducted to evaluate the environmental setting of the project site and identify potential special-status biological resources that may be found on the site. The review centered on the USGS *Canoga Park* and *Oat Mountain* 7.5-minute topographical quadrangle (USGS 2018). The following resources were consulted:

- County of Los Angeles GIS data portal (County of Los Angeles 2019)
- Historic aerials and topographic maps (Google 2019, NETR 2019, USGS 2019)
- Wetland Mapper online viewer (USFWS 2019a)
- U.S. Department of Agriculture Natural Resource Conservation Service's Web Soil Survey (USDA 2019a)
- Information for Planning and Conservation System (IPaC) (USFWS 2019b)
- California Natural Diversity Database Rarefind 5 (CDFW 2019a)
- California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants (CNPS 2019)
- Biogeographic Information and Observation System (CDFW 2019b)
- eBird's online database of bird distribution and abundance (eBird 2019)

4.2 Resource Mapping

Dudek Biologist Johanna Page surveyed the entire LADWP De Soto Reservoir property (including the potential staging area location) on June 20, 2017. Dudek Biologist Tracy Park surveyed the proposed project alignment and potential staging area location on September 13, 2019. Thus, the analysis within this report focuses on the proposed project alignment and potential staging area (project site), including a 300-foot area surrounding the project site (action area). The biological surveys included mapping vegetation communities and land covers present within the action area, an evaluation of the presence of jurisdictional wetlands or waters, and an evaluation of the potential for special-status species to occur in the action area. Table 1, Survey Date and Conditions, includes the survey date and conditions. Dudek biologist resumes are provided in Appendix A, Resumes.

Dudek biologists previously conducted surveys for an LADWP project at the De Soto Reservoir property that included the potential staging area. Since the staging area is undeveloped land, the results of the previous surveys for that area are used in this report to provide additional details regarding existing conditions and potential impacts at the potential staging area. Table 1 includes the survey date and conditions for that survey.

Table 1
Survey Date and Conditions

Date	Time	Personnel	Survey Area	Focus	Conditions
6/20/2017	0700–1100	JP	LADWP De Soto Reservoir property, including the proposed staging area	General biological reconnaissance level survey, vegetation mapping, resources mapping	76°F–95°F, 0% cc, 0–1 mph wind
9/13/2019	0830-1115	TP	Proposed project alignment and proposed staging area	General biological reconnaissance level survey, vegetation mapping, resources mapping	75-92°F 0 mph wind 0% cc

Notes: JP=Johanna Page; TP=Tracy Park; °F = degrees Fahrenheit; mph = miles per hour; cc = cloud cover

Vegetation Community and Land Cover Mapping

Vegetation communities and land uses within the study area were mapped in the field directly onto a 400-foot-scale (1 inch = 400 feet) aerial-photograph-based field map of the project site. Following completion of the fieldwork, all vegetation polygons were digitized using ArcGIS, and GIS coverage was created. Vegetation community classifications used in this report are based on the *Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009), when applicable.

Plant Documentation

All native and naturalized plant species encountered within the study area were identified and recorded. Latin and common names for plant species with a CRPR follow the CNPS *Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2019). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2019), and common names follow the Natural Resources Conservation Service Plants Database (USDA 2019a). General information regarding plant species, identification, and nomenclature was obtained from *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012).

Wildlife Documentation

Wildlife species observed or detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. No trapping or focused surveys for special-status or nocturnal species was conducted. Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithologists’ Union (AOU 2016) for birds, and Wilson and Reeder (2005) for mammals.

All wildlife species detected during the field surveys by sight, vocalizations, burrows, tracks, scat, and other signs were recorded. Expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area.

Jurisdictional Waters

Although a formal wetlands delineation following the methodology described in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2008a), *Wetlands Delineation Manual* (ACOE 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008b) was not conducted during the field survey, the project area was evaluated for the potential to support jurisdictional waters regulated under the federal Clean Water Act, California Fish and Game Code, and Porter-Cologne Water Quality Control Act.

4.3 Special-Status Species Habitat Assessments

Endangered, rare, or threatened plant species as defined in Section 15380(b) of the CEQA Guidelines (14 CCR 15000 et seq.) are referred to as “special-status plant species” in this report and include endangered or threatened plant species recognized in the context of CESA and FESA (CDFW 2019c) and plant species with a CRPR 1 through 4 (CNPS 2019). Species with CRPR 3 or 4 may, but generally do not, qualify for protection under this provision. Species with CRPR 3 and 4 are those that require more information to determine status of plants with limited distribution. Thus, only CRPR 3 and 4 plant species that are also locally recognized (City of Los Angeles 2006a) are analyzed herein.

Endangered, rare, or threatened wildlife species as defined in CEQA Guidelines, Section 15380(b) (14 CCR 15000 et seq.), are referred to as “special-status wildlife species” and, as used in this report, include (1) endangered or threatened wildlife species recognized in the context of CESA and FESA (CDFW 2019d); (2) California Species of Special Concern and Watch List species as designated by CDFW (2019e); (3) mammals and birds that are fully protected species as described in the California Fish and Game Code, Sections 4700 and 3511; (4) Birds of Conservation Concern as designated by USFWS (2008); and (5) and locally designated or recognized wildlife species (City of Los Angeles 2006b).

Database queries were conducted to identify special-status biological resources present or potentially present within the vicinity of the project site using the CNDDB (CDFW 2019a), CNPS *Online Inventory of Rare and Endangered Vascular Plants* (CNPS 2019), and USFWS IPaC (USFWS 2019b). A query was conducted of the CNPS inventory and CNDDB that included the two subject USGS quadrangles (*Oat Mountain* and *Canoga Park*) and the 10

USGS quadrangles (*Val Verde*, *Newhall*, *Mint Canyon*, *Santa Susana*, *San Fernando*, *Calabasas*, *Van Nuys*, *Malibu Beach*, *Topanga*, and *Beverly Hills*) surrounding the subject quadrangles. Results of the CNPS (2019), CNDDB (CDFW 2019a), and USFWS IPaC (2019b) database queries are provided in Appendix B.

4.4 Survey Limitations

Climatic conditions during the survey generally were favorable for identification of wildlife. Potential limitations of the survey included seasonal constraints, a diurnal bias, and the absence of focused trapping for small mammals and reptiles. Surveys were conducted during the daytime to maximize visibility for the detection of plants and most animals. Birds represent the largest component of the vertebrate fauna, and because they are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. In contrast, daytime surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects.

The project site was surveyed in September, outside the blooming period of many plant species; however, the surveys were completed to assess habitat and the potential for special-status species to occur on site. Additionally, many species would not be expected to occur due to lack of suitable habitat along the project alignment. Binocular surveys were conducted in areas where access was limited due to trespassing concerns.

5 ENVIRONMENTAL SETTING

5.1 Land Use

The project is located in the neighborhoods of Chatsworth, Canoga Park, Winnetka, and Woodland Hills in the western portion of the San Fernando Valley in the City. These neighborhoods are bordered by the Santa Susana Mountains to the north; City of Simi Valley to the northwest; Simi Hills, unincorporated Los Angeles County, and Ventura County to the west; City of Calabasas to the southwest; the Santa Monica Mountains to the south; and the neighborhoods of Porter Ranch, Northridge, Reseda, and Tarzana to the east. The project is located within a developed urban area surrounded by single-family and multi-family residences, commercial uses, and various public facilities (e.g., schools) and is easily accessible from SR-118, US-101, and De Soto Avenue.

The general area surrounding the project is also dominated by urban development populated with mixed commercial/residential development and ornamental plantings. Open areas associated with the Santa Susana Mountains are located north and west of the action area. The Santa Susana Pass State Historic Park is located approximately two miles west of the project site, and Stoney Point Park is located approximately 0.7 miles west of the potential staging area. The Chatsworth Reservoir Nature Preserve is located within the foothills of the Simi Hills approximately 2 miles west of the project alignment. Deerlake Ranch (a fully approved residential project currently composed of natural areas) is located approximately 0.7 miles northwest of the potential staging area, north of SR-118. Browns Creek Channel (also known as Browns Canyon Creek) is an earthen-bottomed drainage dominated by riparian and woodland habitat north of SR-118 and northwest of the potential staging area. This creek becomes concrete-lined approximately 0.1 miles south of SR-118.

5.2 Topography

The project site is relatively flat, with elevations ranging between approximately 830 and 950 feet above mean sea level (AMSL) for the majority of the proposed project alignment and between 1,005 and 1,130 feet AMSL within the potential staging area. The topography on site slopes generally slightly southward. The potential staging area is located north of the proposed project alignment within the southwestern portion of the LADWP De Soto Reservoir property, which slopes from northeast to southwest.

5.3 Soils

Soil mapping is from the County of Los Angeles (2014). U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Soil Survey Geographic database was also used to assist with soil descriptions (USDA 2019a). Seven soil types in six series have been previously mapped in the action area: Anacapa sandy loam (2 to 9% slopes), Anacapa-

Urban land complex (0 to 2% slopes), Chualar-Urban land complex (2 to 9% slopes), Conejo-Urban land complex (0 to 2% slopes), Cropley-Urban land complex (0 to 2% slopes), Gaviota sandy loam (9 to 30% slopes), and San Emigdio-Urban land complex (0 to 2% slopes).

Anacapa Series

The Anacapa series consists of coarse-loamy soils on smooth flood plains and alluvial fans on gradients up to 9% and formed in alluvium from predominantly sedimentary rock sources. The soils are well-drained, with medium runoff and moderately rapid permeability. Natural vegetation is annual grasses and forbs (USDA 2019a). Anacapa series soils have been mapped adjacent to the potential staging area and within the main project alignment.

Chualar Series

The Chualar series consist of very deep, well-drained fine-loamy soils that formed in alluvial material from mixed rock sources. The soils have slow to medium runoff and moderately slow permeability. Natural vegetation consists of annual grasses, herbaceous forbs, and, in some places, a few scattered oaks (USDA 2019a). Chualar series soils have been mapped in the northern portion of the main project alignment and proposed staging area.

Conejo Series

The Conejo series consists of very deep, well-drained fine-loamy soils that formed in alluvium from basic igneous or sedimentary rocks. Conejo soils are on alluvial fans and stream terraces. Natural vegetation consists of annual grasses and herbaceous forbs, with few scattered oaks. The soils have slow to medium runoff and moderately slow saturated hydraulic conductivity in the upper horizons (USDA 2019a). Conejo series soils have been mapped in the northern portion of the main project alignment.

Cropley Series

The Cropley series consists of very deep, moderately well and well-drained soils that formed in alluvium from mixed rock sources. Cropley soils are on alluvial fans, floodplains, and in small basins. Vegetation in uncultivated or undeveloped areas is annual grasses and forbs with some scattered live oak (USDA 2019a). Cropley series soils occurs within the portion of the project at the intersection of De Soto Avenue and Victory Boulevard.

Gaviota Series

The Gaviota series consists of very shallow or shallow, well-drained soils that formed in material weathered from hard sandstone or meta-sandstone. Gaviota soils are on hills and mountains and have slopes of 2 to 100%. Natural vegetation is coastal scrub-chaparral mix, and annual grasses (USDA 2019a). Gaviota series soils occur within the potential staging area, as well as within areas surrounding the potential staging area.

San Emigdio

The San Emigdio series consists of fine sandy loam soils that are very deep and well-drained that formed in dominantly sedimentary alluvium. San Emigdio soils are on fans and floodplains and have slopes of 0 to 15%. Uncultivated areas support annual grasses and forbs (USDA 2019a). San Emigdio series soils primarily occur within the southern portion of the main project alignment.

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6 RESULTS

Photo documentation of the study area is provided in Appendix C, Photo Documentation.

6.1 Vegetation Communities and Land Covers

The following seven land covers were mapped within the action area based on general physiognomy and species composition: California buckwheat scrub, non-native grassland, upland mustards, concrete-lined channel, disturbed habitat, ornamental vegetation, and urban/developed. These vegetation communities and land cover types are described below, their acreages are presented in Table 3, and their spatial distributions are presented on Figures 3A through 3E.

Table 2
Vegetation Communities and Land Covers Summary

Vegetation Community / Land Cover Type	California Natural Community Codes[a]	Nature-Serve Global-State Rarity Ranks[b]	Action Area (Acres)
California buckwheat scrub (ERIFAS)	32.040.00	G5 S5	2.37
Upland mustards (UM)	42.011.00	—	2.35
Non-native grassland (NNG)	—	—	0.62
Disturbed habitat (DH)	—	—	7.77
Parks and Ornamental Plantings (ORN)	—	—	2.06
Concrete channel (CC)	—	—	1.10
Urban/developed (DEV)	—	—	316.89

Notes:

[a] Unique codes assigned to alliances and associations.

[b] NatureServe Global and State rarity ranks per Faber-Langendoen et al. (2012). Natural communities with global or state ranks of 1–3 are considered Sensitive Natural Communities by CDFW and are to be addressed in the environmental review processes of CEQA (CDFW).

6.1.1 California Buckwheat Scrub Alliance

California buckwheat scrub is an herbaceous coastal scrub dominated or co-dominated by California buckwheat (*Eriogonum fasciculatum*) that typically occurs on dry slopes, washes, and canyons and coastal bluffs. Characteristic plant species in this community include California sagebrush (*Artemisia californica*), chaparral mallow (*Malacothamnus fasciculatus*), goldenbush scrub (*Isocoma menziesii*), coyote brush (*Baccharis pilularis*), deer weed (*Acmispon glaber*), black sage (*Salvia mellifera*), and white sage (*Salvia apiana*) (Sawyer et al. 2009).

California buckwheat scrub is found approximately 35 feet to the north of the proposed staging area, but not within the actual limits of the staging area. This vegetation community is not considered sensitive by local, state, and/or federal agencies. Plant species recorded within California buckwheat scrub habitat during the two surveys include Eastern Mojave buckwheat

(*Eriogonum fasciculatum* var. *foliolosum*), California sagebrush, clustered tarweed (*Deinandra fasciculata*), laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), shortpod mustard (*Hirschfeldia incana*), horehound (*Marrubium vulgare*), red brome (*Bromus madritensis* ssp. *rubens*), common deerweed (*Acmispon glaber* var. *glaber*), Maltese star-thistle (*Centaurea melitensis*), black sage, winecup clarkia (*Clarkia purpurea*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), slender oat (*Avena barbata*), California four o'clock (*Mirabilis laevis*), and chaparral yucca (*Hesperoyucca whipplei*).

6.1.2 Upland Mustards

Upland mustards (semi-natural stands) is a naturalized vegetation community dominated by a thick layer of herbaceous mustard plants and few other plant species interspersed within an open to continuous canopy. Emergent trees and shrubs may be present at low cover (Sawyer et al. 2009). This habitat often occurs in fallow fields, grasslands, roadsides, levee slopes, disturbed coastal scrub riparian areas, and dumping sites. Characteristic plant species in this community include black mustard, field mustard (*Brassica rapa*), Asian mustard (*Brassica tournefortii*), shortpod mustard, dyer's woad (*Isatis tinctoria*), and cultivated radish (*Raphanus sativus*) (Sawyer et al. 2009).

The potential staging area supports upland mustards. Plant species recorded within the habitat include shortpod mustard, black mustard, red brome, doveweed, Eastern Mojave buckwheat, common sunflower (*Helianthus annuus*), common sowthistle, redstem stork's bill, and clustered tarweed (*Deinandra fasciculata*). Upland mustard also occurs northeast of the potential staging area within the action area. The vegetation community appears to be routinely disturbed as evidenced by compacted soils and was dominated by overgrown mustard stands during the June 2017 site visit. This vegetation community is not considered sensitive by local, state, and/or federal agencies.

6.1.3 Non-Native Grassland

Non-native grassland is a general habitat that is characterized by a dense to sparse cover of weedy introduced annuals. It typically occurs within fine-textured clay soils, adjacent to roads or other developed areas where there has been some historic disturbance. Characteristic plant species in this community include wild oats, bromes (*Bromus* spp.), fescue (*Festuca* spp.), Italian ryegrass (*Lolium multiflorum*), black mustard (*Brassica nigra*), filaree (*Erodium* spp.), and Russian thistle (*Salsola tragus*) (Holland 1986).

This habitat type occurs within the action area south of the potential staging area. The vegetation community appears to be routinely disturbed by regular mowing activity, which was indicative during the June 2017 site visit. This vegetation community is not considered sensitive by local, state, and/or federal agencies. Plant species recorded within non-native grassland habitat include red brome, ripgut brome (*Bromus diandrus*), slender oat (*Avena barbata*), dove weed (*Croton setiger*), black mustard (*Brassica nigra*), shortpod mustard (*Hirschfeldia incana*), common fiddleneck (*Amsinckia intermedia*), Maltese star-thistle (*Centaurea melitensis*), vinegarweed (*Trichostema lanceolatum*), redstem stork's bill (*Erodium cicutarium*), common sowthistle (*Sonchus oleraceus*), sacred thorn-apple (*Datura wrightii*), common deerweed, and common sand aster (*Corethrogyne filaginifolia*).

6.1.4 Disturbed Habitat

Disturbed habitat refers to areas that are not developed yet lack vegetation and generally are the result of severe or repeated mechanical perturbation. Areas mapped as disturbed land may include unpaved roads, trails, and graded areas. Vegetation in these areas, if present at all, is usually sparse and dominated by non-native weedy herbaceous species. Disturbed habitat is not considered sensitive by local, state, and/or federal agencies.

Disturbed habitat within the action area is limited to dirt roads, gravel areas, and recently mowed areas adjacent to roads within the action area. Disturbed habitat occurs within the southeast portion of the potential staging area's 300-foot buffer. Disturbed habitat also occurs at the southeast corner of the De Soto Avenue and Victory Boulevard intersection and along the western extent of the action area on Victory Boulevard.

6.1.5 Ornamental Vegetation

Ornamental vegetation consists of introduced plantings of exotic species as landscaping, including greenbelts, parks, and horticultural plantings (Jones and Stokes 1993). Ornamental plantings occur along the northern portion of the proposed project alignment and in areas surrounding the potential staging area. Ornamental vegetation is not considered sensitive by local, state, and/or federal agencies. Ornamental plantings within the action area are dominated by Italian cypress (*Cupressus sempervirens*), Washington fan palm (*Washingtonia robusta*), Peruvian peppertree (*Schinus molle*), sweetgum (*Liquidambar styraciflua*), Indian laurel fig (*Ficus microcarpa*), Canary Island pine (*Pinus canariensis*), various ornamental pines (*Pinus* spp.), blue jacaranda (*Jacaranda mimosifolia*), California sycamore, river redgum (*Eucalyptus camaldulensis*), Fremont cottonwood (*Populus fremontii*), tree of heaven (*Ailanthus altissima*), European olive (*Olea europaea*), carrotwood (*Cupaniopsis anacardioides*), Victorian boxwood (*Pittosporum undulatum*), southern magnolia (*Magnolia grandiflora*), evergreen ash (*Fraxinus uhdei*), London planetree (*Platanus x hispanica*), oleander (*Nerium oleander*), tree tobacco (*Nicotiana glauca*), lemonscented gum, and regularly maintained lawns and sports fields (i.e., soccer field, baseball field, and football field).

6.1.6 Concrete-Lined Channel

The concrete-lined channel mapping unit is not recognized by *A Manual of California Vegetation* (Sawyer et al. 2009). Concrete-lined channels are characterized by un-vegetated engineered channels lined with concrete that are designed to convey low-frequency, high-volume surface water flows. Browns Creek Channel crosses the action area east of the intersection of De Soto Avenue and Victory Boulevard. Kelvin Channel is a concrete channel located within the action area near the intersection of De Soto Avenue and Victory Boulevard. There is also a v-ditch located to the east of the proposed staging area.

6.1.7 Urban/Developed

Developed lands consist of buildings, structures, homes, parking lots, paved roads, and maintained areas. This land cover type does not support native vegetation. Developed land occurs throughout the proposed project alignment and is dominant throughout the action area. Residential and commercial development and paved well-traversed city roads dominate the developed areas within the action area. These areas support limited natural ecological processes, native vegetation, or habitat for wildlife species and, thus, are not considered sensitive by local, state, or federal agencies.

6.2 Floral Diversity

A total of 60 species of plants, 24 native (28%) and 36 non-native (72%), were recorded within the action area, as shown in Appendix D, Plant Compendium. The project is primarily located within an urban setting in which vegetation is dominated by landscaped areas. The proposed project alignment is dominated by development with ornamental landscaping, and non-native herbaceous forbs and grasses occur sporadically. The majority of the native plants documented within the action area were observed north of the potential staging area location, within the California buckwheat scrub.

6.3 Wildlife Diversity

A total of 27 species of wildlife, 23 native (85%) and four non-native (15%), were recorded within the action area, as shown in Appendix E, Wildlife Compendium. Overall, the diversity of wildlife species in the project site was low due to the high urban development on site and presence of minimal native habitat. The majority of wildlife species were detected within the areas north and east of the potential staging area. Most species observed were birds because of relative species abundance and the diurnal nature of the biological reconnaissance survey. Additionally, given the dense developed areas surrounding the project site, the action area likely supports more urban-adapted species, which is indicative of the species detected on site.

Common bird species observed included American goldfinch (*Spinus tristis*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), California towhee (*Melozone crissalis*), common raven (*Corvus corax*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), and rock pigeon (*Columba livia*. The only raptor species observed within the action area was a red-tailed hawk (*Buteo jamaicensis*), which was observed flying over the action area.

No amphibian species were observed, although common tree frogs (*Pseudacris* spp.) could occasionally occur within the action area. One reptile species, common side-blotched lizard (*Uta stansburiana*), was observed within the action area. Additionally, western fence lizard (*Sceloporus occidentalis*) could occur within the action area.

The following three mammal species were detected within the action area: California ground squirrel (*Spermophilus* [=*Otospermophilus*] *beecheyi*), desert cottontail (*Sylvilagus audubonii*), and raccoon (*Procyon lotor*). Other common mammal species that could occur include Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and Botta's pocket gopher (*Thomomys bottae*).

6.4 Special-Status Resources

6.4.1 Special-Status Plant Species

No special-status plant species were identified within the site during the general biological surveys conducted in June 2017 and September 2019 within the action area. Additionally, no special-status plant species were determined to have a moderate or high potential to occur within the project site due to the lack of suitable habitats. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.

Special-status plant species known to occur in the surrounding region or observed within the action area are presented in Appendix F, Special-Status Plant Species Potential to Occur. The evaluation of each species' potential to occur on site was based on an analysis of elevation, soils, vegetation communities, and level of disturbance of the site in conjunction with the known distribution of special-status species in the vicinity of the project site.

6.4.2 Special-Status Wildlife Species

No special-status wildlife species were observed on site during the general biological surveys conducted in June 2017 and September 2019. Additionally, no special-status wildlife species were determined to have a moderate or high potential to occur within the project site due to the lack of suitable habitats. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for most species. Natural habitats in the action area are limited to the coastal scrub located north of the potential staging area; however, this habitat area is limited, isolated by well-traversed roads and highways and surrounded by disturbed habitat and heavily urbanized development.

Special-status wildlife species known to occur in the surrounding region or observed within the action area are presented in Appendix G, Special-Status Plant Species Potential to Occur. For each species listed, a determination was made regarding the potential for the species to occur on site based on information gathered during the literature review and site visits, including the location of the site, vegetation communities or land covers present, current site conditions, and past and present land use.

6.4.3 Critical Habitat

No USFWS-designated critical habitat for listed wildlife or plant species exists within the project site (USFWS 2019b; Figure 3). The closest USFWS-designated critical habitat for wildlife is for coastal California gnatcatcher (CAGN), located approximately 0.3 miles northwest of the potential staging area (Figure 3). This critical habitat designation is within the western Los Angeles and Ventura Counties Unit (Unit 13), which includes suitable habitat for this species and provides a linkage to known and otherwise isolated populations of coastal California gnatcatchers (71 FR 72010–72213). The area of Unit 13 connects the San Gabriel and Santa Susana Mountains and serves as an essential linkage between two isolated populations of CAGN in the Moorpark area in Ventura County and the pairs documented in the foothills of the San Gabriel Mountains in Los Angeles County (71 FR 72010–72213). A protocol CAGN survey was conducted for the general staging area location in 2018, with negative findings for the species. The survey report is included as Appendix H, Coastal California Gnatcatcher Survey Report.

6.4.4 Migratory Bird Treaty Act

According to the USFWS IPaC Trust Resource Report (USFWS 2019b; Appendix B), the following 13 species of migratory birds could occur within the general action area:

1. Allen’s hummingbird (breeding) (*Selasphorus sasin*; USFWS Bird of Conservation Concern (BCC))
2. California thrasher (year-round) (*Toxostoma redivivum*)
3. salt marsh common yellowthroat (*Geothlypis trichas sinuosa*; USFWS BCC/CDFW SSC)
4. Costa’s hummingbird (breeding) (*Calypte costae*; USFWS BCC)
5. golden eagle (*Aquila chrysaetos*; CDFW SSC)

6. Lawrence's goldfinch (breeding) (*Spinus lawrencei*; USFWS BCC)
7. marbled godwit (wintering) (*Limosa fedoa*; USFWS BCC)
8. Nuttall's woodpecker (year-round) (*Picoides nuttallii*; USFWS BCC)
9. oak titmouse (year-round) (*Baeolophus inornatus*; USFWS BCC)
10. rufous hummingbird (migration) (*Selasphorus rufus*; USFWS BCC)
11. Suisun song sparrow (year-round) (*Melospiza melodia maxillaris*; USFWS BCC/CDFW SSC)
12. San Clemente spotted towhee (year-round) (*Pipilo maculatus clementae*; USFWS BCC/CDFW SSC)
13. wrentit (year-round) (*Chamaea fasciata*; USFWS BCC)

Wrentit was the only migratory bird species provided by the IPaC Trust Resource Report (USFWS 2019b) that was detected within the action area during the biological surveys for the project. The species was detected north of the potential staging area. Many of the bird species listed are unlikely to occur within the action area given the disturbed nature of the site (which is dominated by commercial and residential development) and lack of suitable habitat (i.e., coastal shoreline habitat, wetland and riparian areas, contiguous open habitat, and/or forested areas). Other migratory bird species that could occur within the action area include Allen's hummingbird and rufous hummingbird. These species, if occurring on site, are more likely to occur within ornamental vegetation and around the potential staging area location. The vegetation within the action area surrounding the potential staging area may also provide suitable habitat to support other nesting birds protected under the MBTA and/or California Fish and Game Code.

6.5 Jurisdictional Waters

Although an official jurisdictional delineation was not performed, hydrology and vegetation were examined throughout the action area during the site visit to identify potential wetland sites and/or non-wetland waters (e.g., drainages, channels). Two concrete channels that convey stormwater and nuisance water were identified within the action area. The project is proposed to cross Browns Creek Channel, a concrete channel maintained by the Los Angeles County Flood Control District, east of the intersection at Roscoe Boulevard and De Soto Avenue. Browns Creek Channel is composed of reinforced cement concrete in this area and does not support vegetation. Browns Creek Channel generally flows from north to south and is a tributary to the Los Angeles River (approximately 1.7 miles south of Roscoe Boulevard). Kelvin Channel is located within the action area near the intersection of De Soto Avenue and Victory Boulevard that runs along the eastern side of De Soto Boulevard between north of Victory Boulevard and north to Vanowen Street. This channel supports no vegetation, and waters from this channel are conveyed underground within the project alignment.

6.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals and dispersal of plants (e.g., through wildlife vectors). Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, which helps maintain genetic diversity; providing access to adjacent habitat areas representing additional territory for foraging and mating; allowing for a greater carrying capacity; and providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (i.e., the rescue effect).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat “islands” that function as stepping stones for dispersal and movement (especially for birds and flying insects). Wildlife corridors and habitat linkages provide avenues for dispersal or migration of animals that also contribute to population viability in several ways, including (1) ensuring continual exchange of genes between populations to aid in maintaining genetic diversity, (2) providing habitat for some species, (3) providing access to adjacent habitat areas representing additional territory for foraging and mating, (4) allowing for a greater carrying capacity, and (5) providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes.

The action area is not within any designated wildlife corridors and/or habitat linkages identified in the South Coast Missing Linkages analysis project (South Coast Wildlands 2008), California Essential Habitat Connectivity project (Spencer et al. 2010), or as recognized by the City (City of Los Angeles 2006b). The action area is dominated by developed areas that support minimal vegetation (particularly native vegetation). In addition, the project alignment is isolated from designated wildlife corridors/habitat linkages and other open spaces by substantial developed areas and heavily traversed roadways. Although the study area may provide local movement for some urban-adapted wildlife species (i.e., coyote, striped skunk, raccoon, opossum), there are no corridors that readily provide connection between open spaces or undeveloped lands. Thus, the action area is unlikely to serve as a wildlife corridor or habitat linkage.

6.7 City of Los Angeles Protected Trees

Protected trees as defined in the City of Los Angeles Protected Tree Ordinance do not occur within the proposed project site. All of the trees observed during the survey of the action area are associated with ornamental landscaping and are non-native species.

6.8 Regional Plans

Species or habitats covered within any Habitat Conservation Plan, Critical Habitat Designations, Natural Community Conservation Plans, Significant Ecological Areas, or other approved conservation plans have not been identified within the action area (CDFW 2019f).

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7 IMPACTS

The proposed project would involve both open-trench and pipe jacking construction methods consisting of site preparation, excavation, shoring, pipe installation, backfilling, and work area street restoration. Construction of the proposed project would occur along the existing public right of way within well-traversed paved streets. Open-trench excavation is a construction method typically used to install pipelines and their appurtenances. Pipe jacking is a form of tunneling, which would be used to reduce traffic disruption at busy intersections and to extend underneath features along the alignment that are not suitable for open-trench construction, including portions of the project that cross underneath waterways. Additionally, a potential staging area located within the southwestern portion of the existing LADWP De Soto Reservoir area may be used. The potential staging area, if used, would be considered a temporary impact since it may only be used temporarily for material storage and parking during construction.

The project would be implemented in compliance with construction practices including dust control and noise control. Dust control would involve use of a water truck during construction activities that would expose soils. Noise control activities would include maintaining equipment and scheduling construction activities to comply with the City of Los Angeles Noise Ordinance as feasible. Any portion of the roadway damaged as a result of construction activities would be repaved and restored in accordance with all applicable City of Los Angeles Department of Public Works standards. Once the pavement has been restored, traffic delineation (restriping) would also be restored.

Operational activities would be limited to scheduled maintenance, repair, and inspections. These activities would be minimal and would be similar to those that occur under existing general LADWP service area conditions. Maintenance includes exercising valves, replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities, and periodic inspections. No permanent workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance would, therefore, be minimal.

7.1 Definition of Impacts

7.1.1 Direct Permanent Impacts

Direct permanent impacts refer to the absolute and permanent physical loss of a biological resource due to clearing, grading, and/or construction of structures, which can be determined in four ways: (1) permanent loss of vegetation communities, land covers, and general wildlife and their habitat; (2) permanent loss of or harm to individuals of special-status plant and wildlife species; (3) permanent loss of suitable habitat for special-status species; and (4) permanent loss of wildlife movement and habitat connectivity.

7.1.2 Direct Temporary Impacts

Direct temporary impacts refer to a temporal loss of vegetation communities and land covers resulting from vegetation and land cover clearing. The main criterion for direct temporary impacts is that impacts would occur for a short period of time and would be reversible. For example, areas supporting native vegetation temporarily disturbed by construction activities can be restored and revegetated with a native species mix similar to that which existed prior to disturbance following completion of work in the area, such that full biological function can be restored.

7.1.3 Indirect Impacts

Indirect impacts are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct construction disturbance zone that may occur during construction (i.e., short-term construction related indirect impacts) or later in time as a result of a project (i.e., long-term, or operational, indirect impacts). Indirect impacts may affect areas within the defined action area, but outside the construction disturbance zone. Indirect impacts include short-term effects immediately related to construction activities and long-term or chronic effects related to the human occupation of developed areas (i.e., development-related long-term effects) that are adjacent to naturalized areas.

7.1.4 Explanation of Findings of Significance

The following are the significance thresholds for biological resources provided in the CEQA Appendix G environmental checklist:[2]

- **Impact BIO-1**. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?
- **Impact BIO-2**. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS?
- **Impact BIO-3**. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

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[2] Revisions to the CEQA Guidelines were adopted on December 28, 2018. However, this technical report supports a recirculated CEQA document. The previous CEQA document analyzed a different design for the project and was released for public review before the adoption of the revised CEQA Guidelines. As such, this analysis uses the version of the CEQA Guidelines and Appendix G that was in place when the previous CEQA document was released for public review.

- **Impact BIO-4**. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- **Impact BIO-5**. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- **Impact BIO-6**. Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

7.2 Impacts to Vegetation Communities and Land Covers

Direct Impacts

The project site does not support any sensitive vegetation communities. The majority of the proposed project alignment occurs within paved City streets, and the potential staging area is dominated by compacted and routinely disturbed upland mustard, which is not recognized as a sensitive vegetation community. As such, implementation of the proposed project would not result in temporary or permanent direct impacts to sensitive vegetation communities, and no avoidance or mitigation measures are recommended.

Indirect Impacts

The project site does not support any sensitive vegetation communities; thus, indirect impacts to sensitive vegetation communities are not anticipated to occur during proposed project activities. The proposed action area is located within an urban setting dominated by dense residential and commercial development and ornamental landscaping. The only native CDFW-ranked vegetation community within the proposed action area is California buckwheat scrub, which occurs approximately 30 feet north of the potential staging area. California buckwheat scrub is not considered a sensitive vegetation community. Other vegetation communities and land covers identified within the action area are composed of disturbed habitats including compacted and routinely disturbed non-native grasslands, dense stands of upland mustard (semi-natural stands), concrete channels (which would not be impacted), disturbed habitat, ornamental plantings, and developed areas. As such, short-term and long-term indirect impacts to sensitive vegetation communities are not anticipated to occur and no avoidance or mitigation measures are recommended.

7.3 Special-Status Plants

Direct and Indirect Impacts

No special-status plant species were observed within the project site. Additionally, the project site occurs within developed and disturbed areas dominated by ornamental landscaping. The potential staging area is dominated by compacted and routinely disturbed non-native grassland habitat unlikely to support special-status plants. Thus, special-status plant species are either not expected to occur or have a low potential to occur within the project site (Appendix D). As such, the proposed project is not anticipated to result in direct or indirect impacts to special-status plants, and no avoidance or mitigation measures are recommended.

7.4 Special-Status Wildlife

Direct Impacts

One special-status species, wrentit, was detected within the action area during surveys conducted for the project site in June 2017 and September 2019. However, the species was observed within the California buckwheat scrub north of the potential staging area, which will not be directly impacted by the project. The project site is surrounded by dense development on all sides, lacking habitat to support special-status wildlife species. The only vegetation present within the project site is limited to upland mustard habitat present within the potential staging area location. However, this habitat is too routinely disturbed to provide suitable habitat to support special-status wildlife species. Thus, special-status wildlife species have a low or no potential to occur within the project site (Appendix G). As such, no direct impacts to special-status wildlife species are anticipated. No tree or shrub removal is anticipated by the project, so no direct impacts to nesting bird species protected under the MBTA and California Fish and Game Code (Sections 3503.5, 3503, and 3513) are expected. Direct impacts to special-status wildlife species are not anticipated to occur, and direct impacts to protected nesting birds are anticipated to be less than significant. No avoidance or mitigation measures are recommended.

Indirect Impacts

The trees and shrubs throughout the action area provide limited nesting habitat for bird species protected under the MBTA and California Fish and Game Code (Sections 3503.5, 3503, and 3513). Given the heavily urbanized setting and associated noise prevalent within the action area, the proposed project activities are not anticipated to result in indirect impacts to nesting birds throughout the alignment and potential staging area. Nighttime construction is not expected for the project, so indirect impacts on potentially foraging special-status bats is not expected.

7.5 Jurisdictional Resources

Direct Impacts

Pipeline jacking would occur within portions of the project alignment proposed to cross Browns Creek Channel; thus, the channel is not anticipated to be impacted by the proposed project. As such, the project is not anticipated to result in direct impacts to any jurisdictional waters, and no avoidance or mitigation measures are recommended.

Indirect Impacts

Potential temporary indirect impacts to jurisdictional waters (Browns Creek Channel) in the action area would primarily result from construction activities and would include impacts from the generation of fugitive dust and the introduction of chemical pollutants (including herbicides). Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect wetlands/jurisdictional waters. The release of chemical pollutants can reduce the water quality downstream and degrade adjacent habitats. However, during construction, erosion-control measures would be implemented as part of the Storm Water Pollution Prevention Plan (SWPPP) for the project. Prior to the start of construction activities, LADWP and/or its construction contractor would be required to file a Permit Registration Document with the State Water Resources Control Board in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for earthwork that results in the disturbance of one acre or more of total land area. The required SWPPP will mandate the implementation of best management practices to reduce or eliminate construction-related pollutants in the runoff, including sediment. Therefore, temporary indirect impacts would be less than significant due to compliance with regulations.

7.6 Wildlife Corridors and Habitat Linkages

Direct and Indirect Impacts

The proposed project site occurs within an urban setting and would neither interfere or remove access to established native resident or migratory wildlife corridors nor impede the use of native wildlife nursery sites. The project site and action area does not reside within any designated wildlife corridors or habitat linkages identified in the South Coast Missing Linkages project (South Coast Wildlands 2008), California Essential Habitat Connectivity project (Spencer et al. 2010), or as recognized by the City (City of Los Angeles 2006b). Urban-adapted wildlife species (i.e., striped skunk, raccoon, and opossum) may use the action area for local movement, but these species are primarily nocturnal and limited nighttime work and lighting is expected; project construction is scheduled to occur between 7:00 am and 6:00 pm Monday through Friday. Therefore, direct and/or indirect impacts to wildlife corridors and habitat linkages are not anticipated, and no avoidance or mitigation measures are recommended.

7.7 City of Los Angeles Protected Trees

Direct and Indirect Impacts

No City-protected trees were observed within the project site or within the visually accessible portions of the action area. Therefore, direct and/or indirect impacts to City-protected trees are not anticipated, and no avoidance or mitigation measures are recommended.

7.8 Regional Plans

Species or habitats covered within any Habitat Conservation Plan, Critical Habitat Designations, Natural Community Conservation Plans, Significant Ecological Areas, or other approved conservation plans have not been identified within the action area (CDFW 2019f). As such, the proposed project would not be located within an area affected by or subject to an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

8 MITIGATION MEASURES

As described in Section 7, impacts for all thresholds would be below a level of significance. As such, no mitigation measures are necessary.

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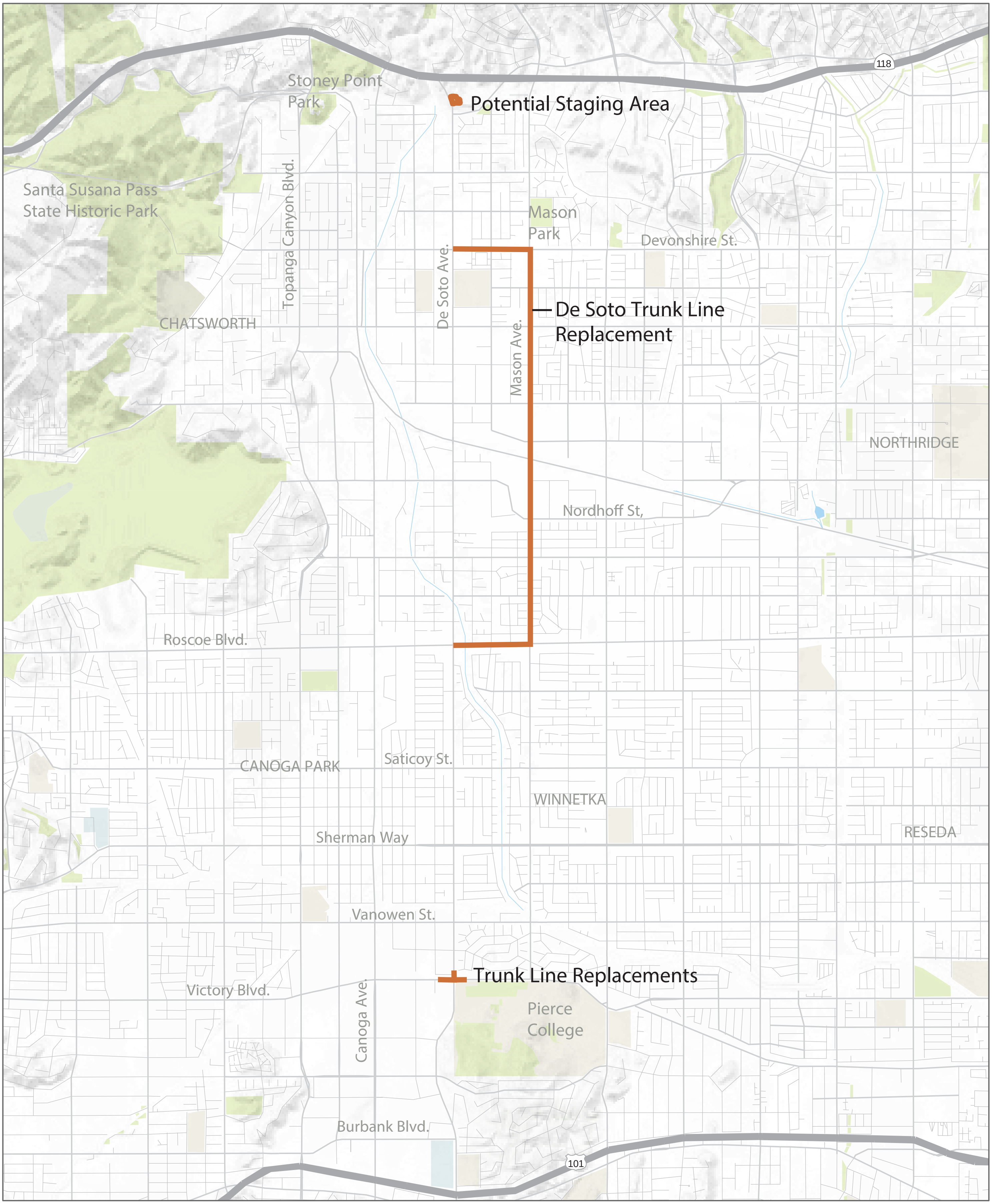

SOURCE: OpenStreetMap

Los Angeles Department of Water & Power

FIGURE 1

Project Location

De Soto Trunk Line Project

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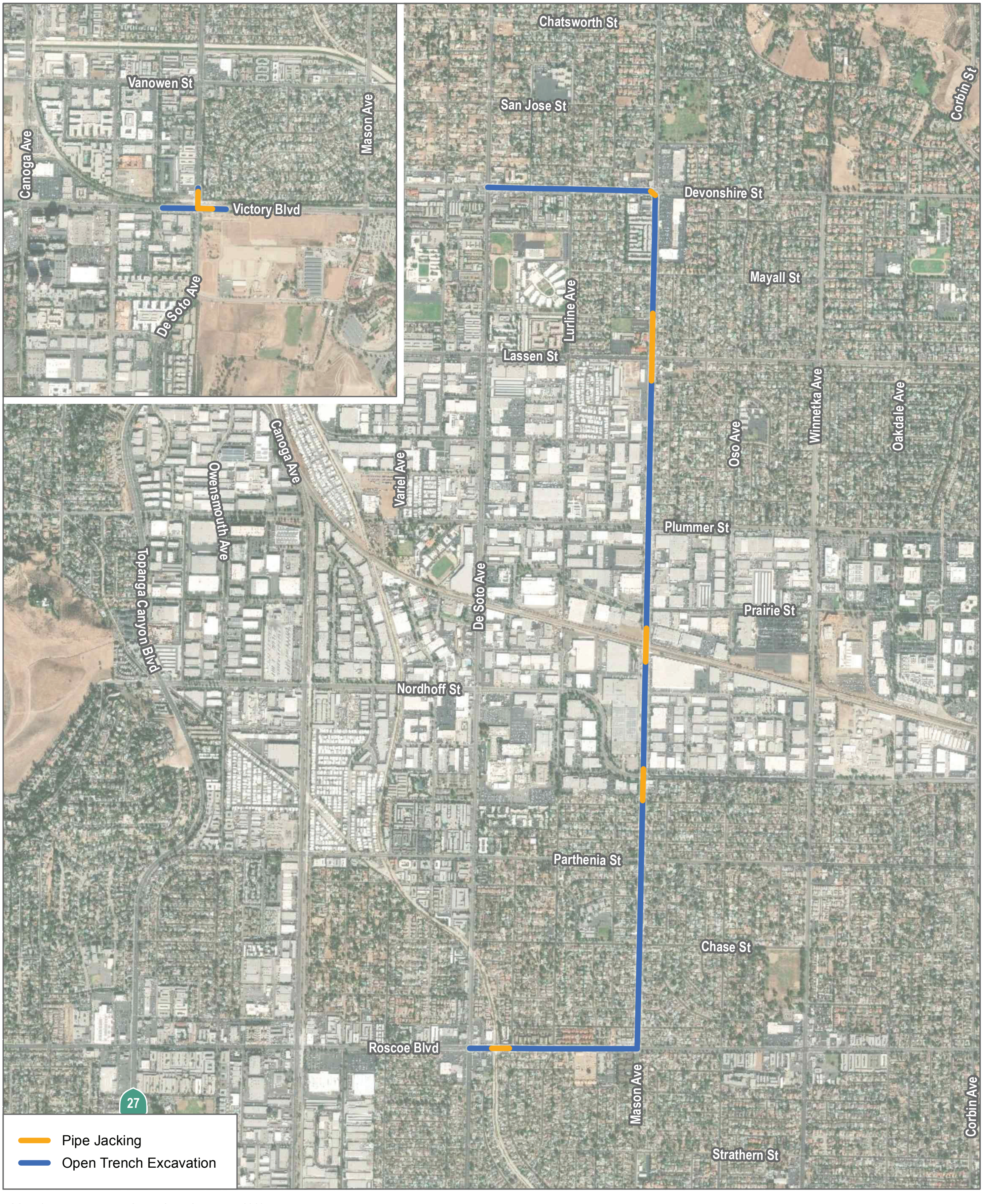

SOURCE: Esri and Digital Globe, Open Street Map 2019

LA DWP Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 2

Construction Methods

De Soto Trunk Line Project

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SOURCE: NAIP 2016; LADWP 2017

LA DWP Los Angeles Department of Water & Power

FIGURE 3 SHEET A

Field Map - Vegetation

De Soto Trunk Line Project

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Biological Study Area (300ft

Land Cover

▨ DEV - Urban/Developed

▨ DH - Disturbed Habitat

SOURCE: NAIP 2016; LADWP 2017

LA DWP Los Angeles Department of Water & Power

0 225 450 Feet

FIGURE 3 SHEET B

Field Map - Vegetation

De Soto Trunk Line Project

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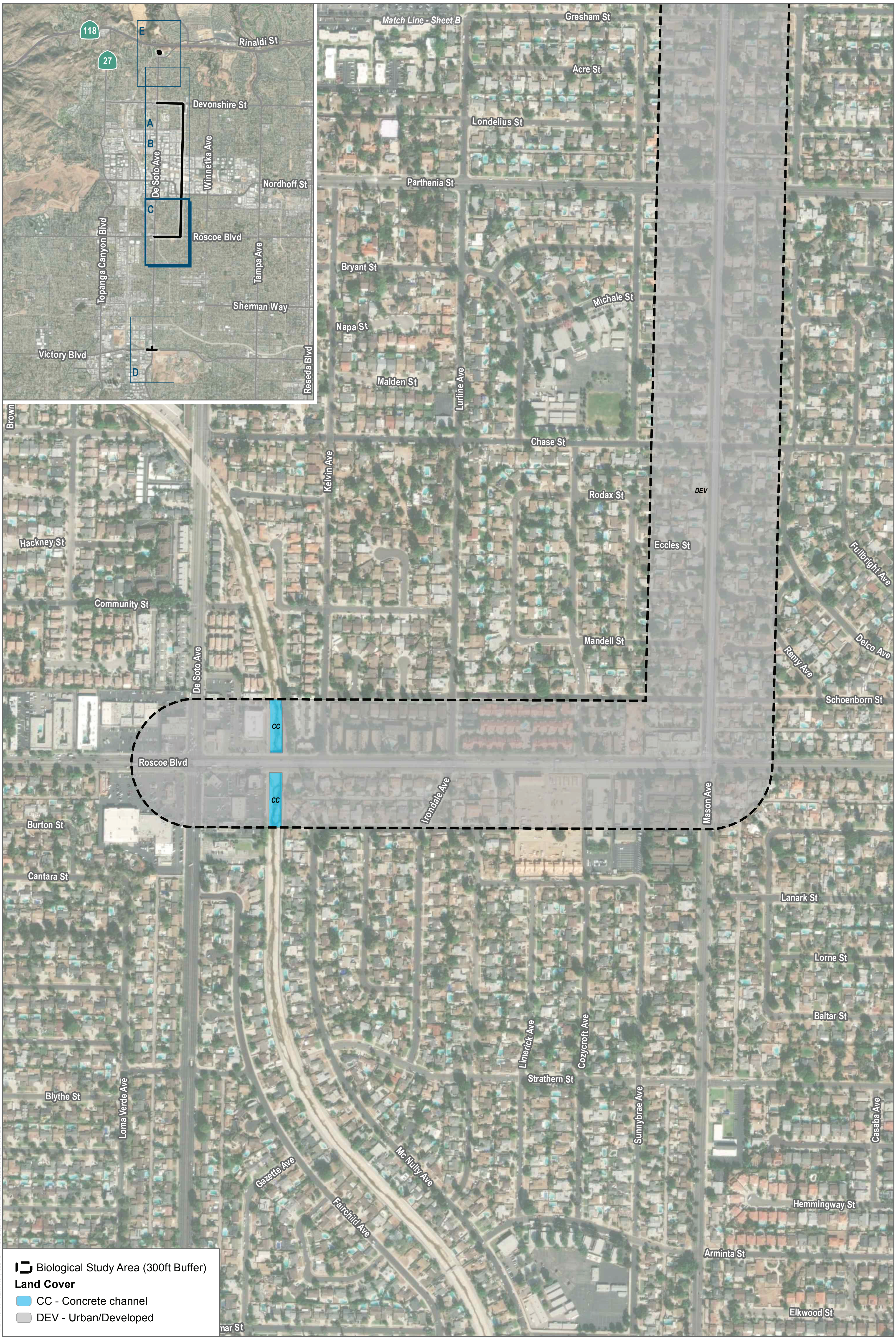

SOURCE: NAIP 2016; LADWP 2017

LA DWP Los Angeles Department of Water & Power

0 225 450 Feet

FIGURE 3 SHEET C

Field Map - Vegetation

De Soto Trunk Line Project

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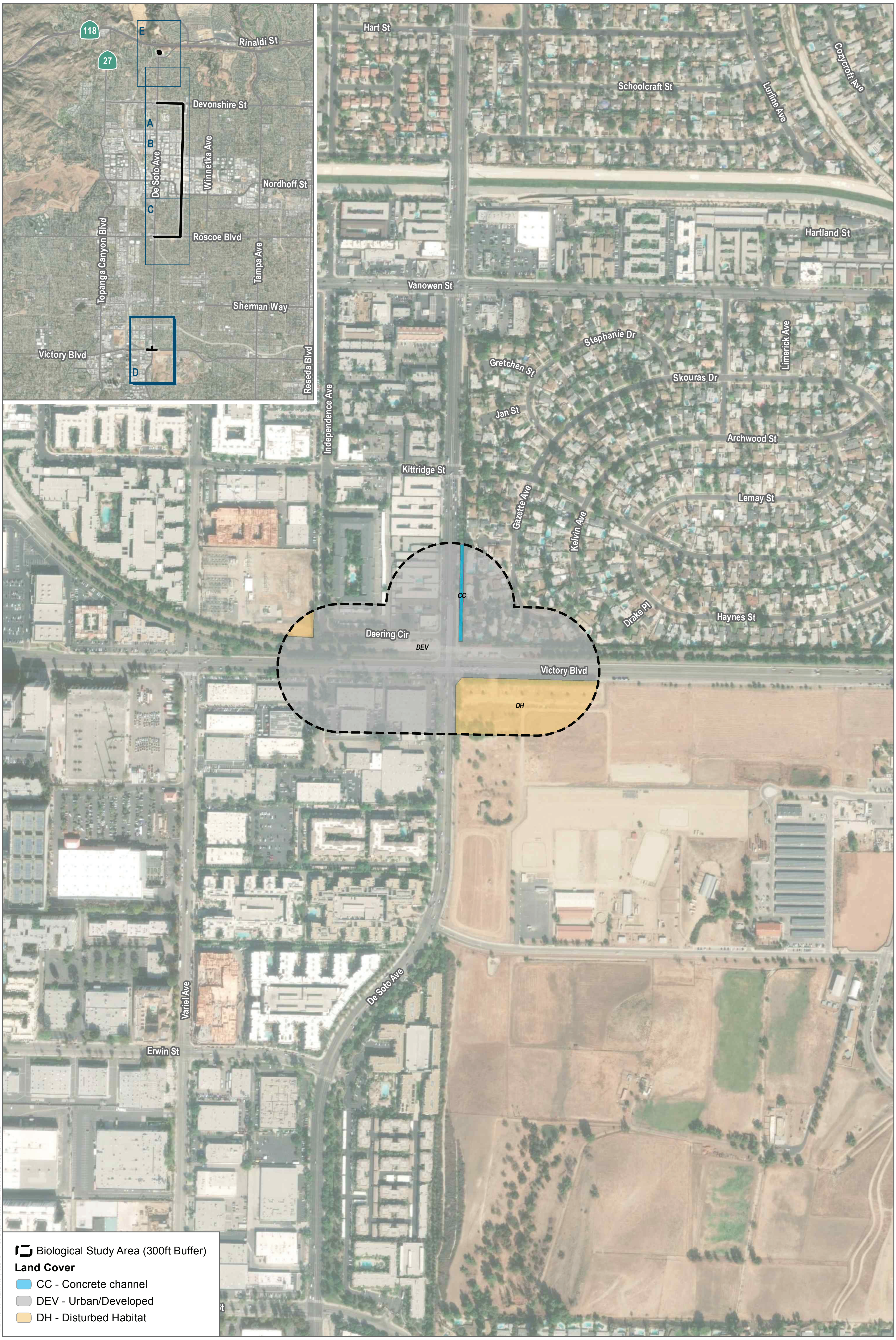

SOURCE: NAIP 2016; LADWP 2017

LA DWP Los Angeles Department of Water & Power

FIGURE 3 SHEET D

Field Map - Vegetation

De Soto Trunk Line Project

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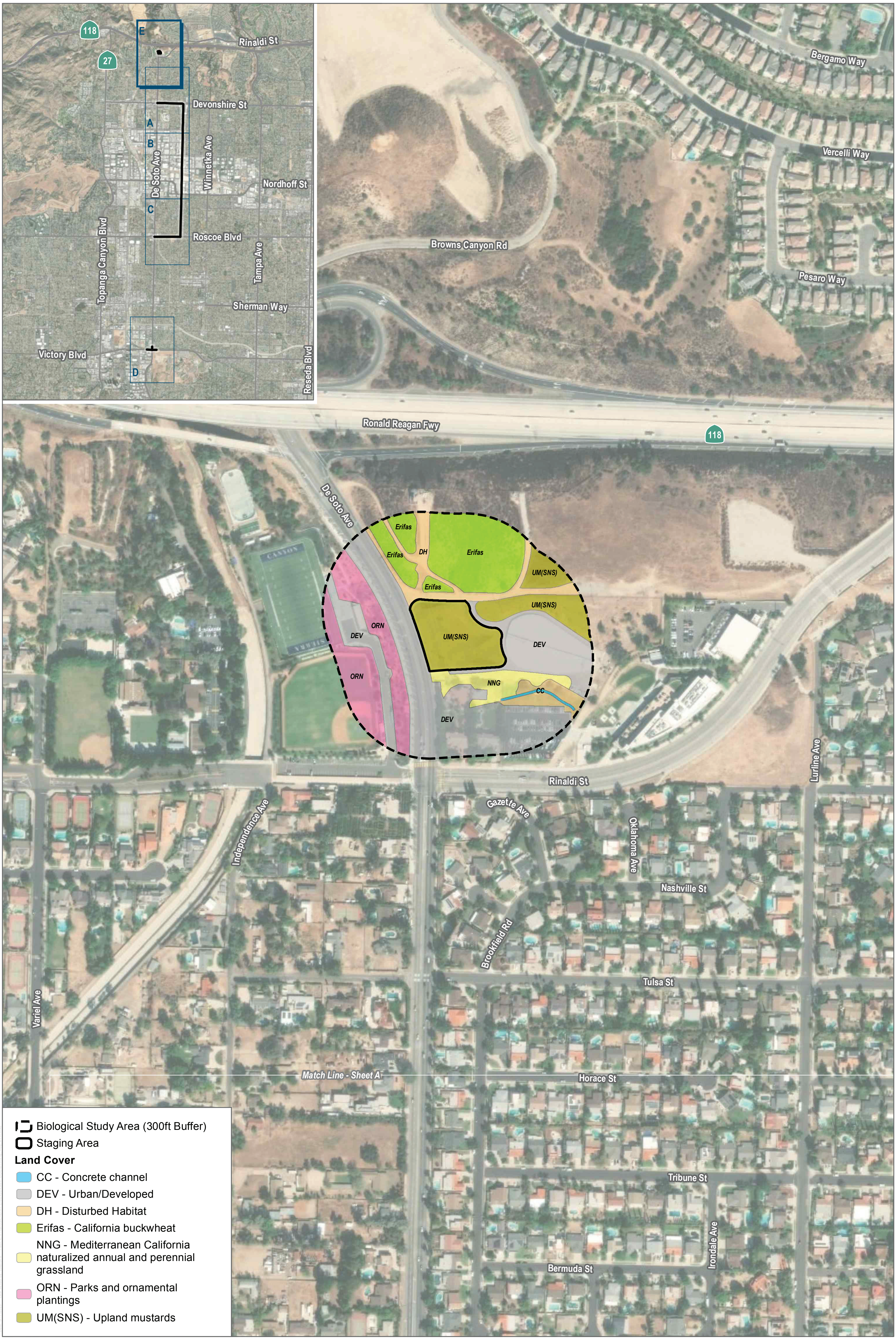

SOURCE: NAIP 2016; LADWP 2017

0 150 300 Feet

FIGURE 3 SHEET E

Field Map - Vegetation

De Soto Trunk Line Project

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APPENDIX A

Resumes

Michael Cady

Senior Biologist

Michael Cady is a senior biologist with 15 years' experience with fieldwork and the application of environmental regulatory requirements for CEQA/NEPA compliance. Mr. Cady has worked extensively in a variety of habitats and jurisdictions throughout California. He has prepared biological technical reports in support for project and programmatic-level EIRs/EISs, initial studies (ISs), and environmental assessments (EAs). In addition, Mr. Cady has prepared permit applications and documentation to support federal ESA Section 7 and 10 consultations, CESA 2081 ITPs, CWA Section 401 and 404, and CFGC Section 1602 LSA.

Mr. Cady's field experience includes protocol surveys and habitat assessments for a variety of special-status wildlife species, rare plant surveys, general flora and fauna surveys, oak and general tree surveys, vegetation mapping, and nesting bird surveys. He has conducted wetland delineations in accordance with federal and State guidelines for a variety of aquatic resources in California. Mr. Cady's compliance monitoring experience includes both large-scale infrastructure projects and smaller projects within sensitive habitats. He has also provided environmental inspection for simple to complex projects.

Education

California State Polytechnic University, Pomona

BS, Environmental Biology, 2008

Certifications

CDFW Scientific Collecting Permit, No. SC-12259

CDFW State-Listed Plant Voucher Collection Permit,
No. 2081(a)-11-15-V

Forestry and Wildlands Resources Certificate, Citrus College

Professional Affiliations

Desert Tortoise Council

Society for the Study of Amphibians and Reptiles

Southern California Botanists

Project Experience

Water/Wastewater

Los Angeles County Department of Public Works (LADPW) Cogswell Dam Restoration Project, Los Angeles County, California. Served as senior biologist for the proposed sediment removal in the Cogswell Dam Reservoir. Provided jurisdictional waters delineation and reporting for Cogswell Reservoir and adjoining streams, along with rare plant and least Bell's vireo protocol surveys.

LADPW Eaton Wash Dam Spillway Access Ramp, Pasadena, California. Served as a field biologist that provided environmental clearance for the commencement of construction of a spillway access ramp. Provided nesting bird surveys and reporting.

LADPW Eaton Canyon Reservoir Vegetation Maintenance, Pasadena, California. Served as a field biologist that provided surveys and monitoring for the clearance of vegetation within the reservoir. Duties included least Bell's vireo surveys and monitoring of the vegetation removal.

Los Angeles County Sanitation District On-Call Biological Services, Los Angeles County, California. Served as project biologist for the construction of various water-supply infrastructure in the Antelope Valley and Los Angeles Basin. Duties included the jurisdictional waters delineation of various wetlands and non-wetlands. Also prepared multiple biological resource assessments for a variety of projects, including the vegetation management plan for the sensitive Piute Ponds. Lead the biological monitoring for the construction of the pipeline and reservoirs. Also provided pre-construction surveys for desert tortoise, burrowing owl, American badger, nesting birds and rare plants on over 1,000 acres of the project area.

Palmdale Water District Water System Master Plan Update, Palmdale, California. Served as senior biologist for the technical studies for an EIR in support of a master plan update for a 43 square mile service area. Provided surveys, studies, and biological technical report preparation. Services provided also included providing CEQA impact-mitigation analysis for the project's EIR and cumulative impacts analysis.

City of Morro Bay Water Reclamation Facility, Morro Bay, California. Served as senior biologist for a proposed wastewater collection system modifications, a new pumping station, a new force main to convey the raw wastewater to the site, advanced water treatment, recycled water storage and pumping facilities, and injection wells for groundwater replenishment. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for water reclamation facility located within a local coastal plan. Prepared Biological Resources sections for EIRs, including providing appropriate mitigation measures, and cumulative impacts analysis.

Energy

Southern California Edison (SCE) O&M On-call Biological Services, California. Served as Biological Resources Technical Lead, QA/QC Lead, Project Manager, and Field Director for a SCE Operations and Maintenance On-call Contract for Natural and Water Resources Services in multiple counties throughout SCE's service area in California and into Arizona (transmission lines). Work completed included more than 2,000 survey, monitoring, and report production work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects were located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management (Barstow, Needles, Bakersfield, Ridgecrest, Palm Springs/South Coast), United States National Forests, The National Park Service, and California State Parks. Projects involved special-status species surveys and habitat assessments, nesting bird surveys, jurisdictional waters delineation and permitting, monitoring, and emergency response work.

Geokinetics Jacalito 3D Seismic Survey, Kern County, California. Served as lead biologist for inventory and monitoring for over 300 square miles in agricultural lands and sensitive native habitats for a seismic survey for oil and gas deposits. Special-status species surveys included blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and burrowing owl. The project resulted in zero take of special-status species and impacts to sensitive habitat were limited to the minimal extent possible.

First Solar Stateline Solar Farm Project, San Bernardino County, California. Served as project manager and compliance manager/environmental compliance monitor for the third-party compliance management program representing the BLM during the construction of a 300-MW PV solar electricity generation project on 1,685 acres near the California-Nevada border. Services provided included review of preconstruction plan submittals, compliance management and daily monitoring, daily and weekly report preparation, variance preparation and management, and development of internal and public websites and periodic updates. Ensured that the SWPPP and all other BMPs were implemented correctly. Provided an interface between the client and BLM to expedite project needs and reduced delays to the project.

Pacific Gas and Electric (PG&E) Third-Party EA Support for Gas Pipeline Maintenance, San Bernardino County, California. Served as senior biologist for proposed maintenance of two PG&E gas pipelines in the Mojave Desert. Both pipelines are located on lands managed by the Bureau of Land Management that are regulated by the Desert Renewable Energy Conservation Plan. Provided review of special-status focal survey reports and preparation of biological resources technical reports and sections. The reporting includes impacts and mitigation analysis using the prescribed Conservation and Management Actions.

Los Angeles Department of Water and Power Victorville-Century 287 kV Transmission Lines, San Bernardino County, California. Served as senior biologist for the clearance of restoration sites on the Victorville-Century 287 kV Transmission Lines. Provided desert tortoise clearance surveys and updated the habitat assessment for the species in the area.

County of Kern Third-Party CEQA Consultant for Solar Energy Projects, Kern County, California. Served as a senior biologist that assisted Kern County with the review of natural resource reports that had been prepared for solar energy projects. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for numerous solar energy projects. Prepared Biological Resources sections for EIRs, including providing appropriate mitigation measures.

EDF Renewables Valentine Solar Project, Kern County, California. Served as a senior biologist for the initial studies and permitting for a for a 2,000-acre solar project on natural lands. Conducted the jurisdictional waters delineation, vegetation mapping, and habitat assessments for sensitive plant and wildlife species. Also consulted with the regulatory agencies on the necessary permits and extent of impacts to jurisdictional waters.

NextEra San Gorgonio Wind Energy Center, Riverside County, California. Served as a project biologist for the initial studies, reporting, permitting, and monitoring for an 800-acre wind energy project. Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFG SAA. Focused surveys for rare plants, flat-tailed horned lizard, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and EA. Produced and implemented a burrowing owl mitigation and monitoring plan. Lead biologist for biological monitors during project construction. Assisted in post-construction bird/bat mortality study setup and habitat restoration monitoring.

NextEra Blue Sky Wind Generation Project, Los Angeles County, California. Served as a senior Biologist for a proposed 7,500 acres wind project located within a Los Angeles County-designated Significant Ecological Area. Provided natural resources support that included vegetation mapping, rare plant surveys, avian point counts, and burrowing owl surveys. Produced the biological constraints analysis and the biological resources technical report.

NextEra WPP-91 Wind Energy Generation Facility Decommissioning, Riverside County, California. Served as a senior biologist for the decommissioning of a 200-acre wind energy facility project. Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFG SAA. Focused surveys for rare plants, flat-tailed horned lizard, Coachella Valley fringe-toed lizard, and burrowing owl. BLM-approved Field Contact Representative and Designated Biologist during project activities.

NextEra Kramer Junction Solar Energy Center, San Bernardino County, California. Served as a biologist for a proposed 300-acre solar energy facility. Provided surveys, reporting, and permitting. Focused surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and CESA 2081. Also provided habitat assessment for 20 parcels in the project vicinity for potential mitigation.

NextEra Lucerne Valley Solar Energy Center, San Bernardino County, California. Served as a biologist for the initial studies and permitting for a proposed 650-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls. Prepared biological technical reports in support of EIR and CUP.

NextEra Dawn Solar Energy Center, Kern County, California. Served as a biologist for the initial studies of a proposed 600-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls; conducted a jurisdictional waters delineation; and prepared biological technical reports

NextEra SEGS X Expansion Project, San Bernardino County, California. Served as a biologist for the initial studies for the proposed expansion of a solar energy facility located north of Harper Dry Lake. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Iberdrola – Camino Solar Project, Kern County, California. Served as the senior biologist for the initial studies for a proposed solar energy facility located within the Tylerhorse Wind Project. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

sPower Renewable Energy Projects, Los Angeles and Kern counties, California. Served as senior biologist for the initial studies for multiple small-scale solar energy facilities in the Antelope Valley. Provided general biological surveys, vegetation mapping, jurisdictional waters delineations, and reporting.

WKN USA Wagner Wind Energy Project, Palm Springs, California. Served as a project biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP. Lead biologist for biological monitors during project construction.

Graham Pass Wind Energy Facility, Riverside County, California. Served as the senior biologist for the initial studies for a proposed wind energy facility located south of Desert Center in critical habitat for desert tortoise. Provided vegetation mapping, habitat assessments, desert tortoise surveys, and the preparation of a Biological Assessment for desert tortoise.

Tehachapi Wind Repower Project, Kern County, California. Served as the senior biologist for the initial studies for a proposed repower of a wind energy facility. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

Geokinetics Lake Mendocino 3d Seismic Survey, Colusa County, California. Served as lead biologist for surveys, reporting, and compliance monitoring oversight for a 500-acre seismic survey project. Conducted habitat assessments and focused surveys for Swainson's hawk and giant garter snake. Prepared Biological Resources Assessment report and assisted with FWS consultation, and preparation of an IS/MND. Provided oversight of the monitoring effort.

Plains All American Natural Resources Regulation Training, San Bernardino County, California. Served as biologist for delivering natural resources regulation training to the company's California engineers and project managers. Prepared and delivered the training that focused on CEQA, State and federal ESA, and waters regulations.

Kinder Morgan Meter Stations, Kern County, California. Served as lead biologist for proposed meter stations located in the oil and gas fields near Taft. Provided biological surveys, habitat assessments, and reporting for reports required by DOGGR.

PG&E PSEP Line 167-1 Pipeline Replacement, Butte County, California. Served as environmental inspector and wildlife monitor for 2.2-mile pipeline replacement that crossed jurisdictional waters and habitat associated with special-status species. Duties included enforcing the SWPPP and other BMP measures to limit the environmental impact of the project and to avoid the take of giant gartersnake and nesting raptors. Provided daily and weekly reporting to the client.

PG&E DFM-1815-02 Pipeline Replacement Project, Monterey, County, California. Senior biologist for the replacement of an approximately 11-mile natural gas replacement along State Route 68. Provided general surveys, habitat assessment, rare plant surveys, burrowing owl surveys, California red-legged surveys, and prepared the technical reports for the project.

SCE North Sky River Windhub Transmission Project, Kern County, California. Served as senior environmental monitor for the construction of interconnect transmission line. Ensured that there were no impacts to California condor and other sensitive species, and implemented a worker's environmental plan for the project.

PG&E Willow Creek Native Species Monitoring, Fresno County, California. Served as a field biologist for native species monitoring to keep the client in compliance with FERC regulations for upstream hydroelectric dams. Provided red-legged frog, western pond turtle, and native fish surveys (included electro-shocking).

SCE Fort Irwin Reliability Project, San Bernardino County, California. Served as senior wetland biologist for a transmission line improvement project located on lands administered by the BLM, Department of Defense, and private landowners. Provided oversight on the jurisdictional waters delineation and preparing the necessary permit packages.

Morgan Hills Wind Energy Transmission Line (Segments 1 and 2) and Access Roads, Kern County, California. Served as senior biologist for the proposed construction of transmission lines through a variety of habitats in the Tehachapi Mountains. Lead the vegetation mapping, rare plant surveys, desert tortoise surveys, and burrowing owl surveys, and prepared the reports.

SCE Kern River TLRR Project, Kern and Los Angeles Counties, California. Served as senior wetland biologist for an approximately 70-mile Southern California Edison transmission line improvement project. Provided jurisdictional waters delineation and rare plant surveys.

PG&E Contra-Costa-Moraga 230 kV Reconductoring, Contra Costa County, California. Served as a field biologist for due diligence surveys for a 27-mile long transmission line project. Provided Swainson's hawk and burrowing owl protocol surveys and prepared the technical reports.

SCE San Joaquin Cross Valley Loop Transmission Project, Tulare County, California. Served as a field biologist for initial studies for the construction of a new 19 mile double-circuit 220 kilovolt transmission line. Conducted rare plant surveys and verified jurisdictional waters/wetlands mapping.

Astoria Solar Project Vegetation Management Assistance, Kern County, California. Served as senior biologist for vegetation maintenance guidance that was needed to comply with North American Electric Reliability Commission requirements. Provided vegetation mapping and plant maintenance guidelines for plants beneath and adjacent to the project's gen-tie lines.

NextEra Suncrest Dynamic Reactive Power Support Project, San Diego County, California. Served as the senior biologist for the initial studies of a dynamic reactive device at the existing Suncrest Substation's 230 kilovolt bus. Provided vegetation mapping, habitat assessment, rare plant survey, and jurisdictional waters delineation, reporting, and permitting.

Riverside Energy Resource Center, Unit 3 and 4, Riverside, California. Served as the biologist for the construction of a gas-fired peaking project. Developed a workers environmental awareness plan and provided preconstruction surveys for burrowing owl and nesting birds.

Development

Rancon Group – Ranch Storage and Temescal Canyon Road Improvement Project, Riverside County, California. Served as the project manager and senior biologist for the initial studies of a proposed storage facilities and improvements to the adjacent road. Provided project management, jurisdictional waters delineation and reporting, and a Western Riverside County MSHCP Consistency Analysis and Determination of Biologically Equivalent or Superior Preservation.

Andora Subdivision Project Natural Resources Permitting, Los Angeles, California. Served as the project manager and senior biologist for the natural resources permitting for a proposed 33-lot residential subdivision with an open space lot that was used for mitigation for impacts. Provided project management, jurisdictional waters delineation, rare plant survey, and technical support for a CESA 2081 Incidental Take Permit for Santa Susana tarplant and jurisdictional waters permits. Also prepared the Habitat Mitigation and Monitoring Plan and Land Management Plan for the permits and coordination with agencies. Prepared a Property Analysis Record (PAR) and Land Management Plan in support of establishing a conservation easement on the open space lot.

Copper Creek North and South, Los Angeles County, California. Served as a biologist for the initial studies of a proposed 484 home residential project that included public parks and an elementary school on 453-acres. Provided surveys and studies for biological technical report, environmental permitting, EIR preparation, and biological monitor Services provided included general and sensitive species surveys, vegetation mapping, rare plant surveys, jurisdictional waters delineation, oak tree surveys, oak tree permit, nesting bird surveys, Initial Study preparation, biological resource analysis, CUP/EIR preparation, agency consultation, and 404, 401, 202(p) permits preparation.

Centex Homes – Fagan Canyon Housing Development and Open Space Plan, Ventura County, California. Project biologist for proposed 2,176-acre housing development and open space plan. Lead the delineation of over five linear miles of perennial riparian, adjacent wetlands, and ephemeral drainages. Lead the oak tree assessment and survey. Conducted rare plant surveys and general biological surveys. Also developed a riparian and wetland restoration plan to mitigate project impacts. Surveyed undeveloped properties in the vicinity for potential mitigation sites.

KB Homes Coastal Mission 316 West Subdivision Project, San Marcos, California. Served as senior biologist for 67 multifamily dwelling units on approximately 3.71 acres. Provided surveys, reporting, and impact analysis to support an EIR for the project. Consulted with the U.S. Fish and Wildlife Service (USFWS) to avoid California gnatcatcher take.

Soledad Circle Estates, Santa Clarita, California. Served as the project biologist for a proposed 150 multifamily residential unit subdivision in natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation.

Spring Canyon Residential Subdivision, Santa Clarita, California. Served as the project biologist for a proposed 499 multifamily residential unit subdivision on 550 acres of natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, prepared a rare plant translocation plan, oak tree survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation. Also provided a wildlife corridor-habitat linkage analysis along the Interstate 14 in the vicinity of the project, and conducted extensive surveys for a 80-acre mitigation parcel located in Violin Canyon.

Stephenson Canyon Residential Project, Los Angeles County, California. Served as a biologist for the initials studies for a proposed residential development in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, oak tree survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Verdugo Ranch Riparian Mitigation, Los Angeles County, California. Served as project manager and biologist for the mitigation plan design, implementation, and monitoring for creation of two acres of riparian habitat within a residential development. Monitored the project for five years and helped meet agency criteria for success.

University of California, Irvine Faculty and Staff Housing Project, Irvine, California. Served as project manager and biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted general habitat assessment and vegetation mapping, and surveys for rare plants and burrowing owl. Prepared the biological resources technical report. Lead biologist for biological monitors during project construction.

Gordon Mull Subdivision Project, Glendora, California. Served as the senior biologist for a 71-acre residential project located in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Lakeshore Town Center, Lake Elsinore, California. Served as senior biologist for the initial studies and permitting for a 24.5 acre mixed-use development on the shore of Lake Elsinore. Conducted general habitat assessment and vegetation mapping, surveys for rare plants and burrowing owl, and jurisdictional waters delineation, reporting, and permitting.

Scholl Canyon Landfill Project, Glendale, California. Served as senior biologist for the initial studies of a new facility within developed and natural lands within the landfill. Provided vegetation mapping, habitat assessment, rare plant survey, protected tree mapping, and biological resources technical report preparation.

Transportation

LOSSAN CP San Onofre to CP Pulgas Double Track Upgrade Project, San Diego County, California. Served as the project biologist for the surveys and reporting for a six mile portion of CP San Onofre to CP Pulgas railway. Services provided included sensitive and general species surveys, habitat assessments for sensitive species (arroyo toad, quino checkerspot butterfly, and San Diego ambrosia), vegetation mapping, and Biological Assessment preparation for ESA Section 7 consultation.

Riverside Municipal Airport Expansion Project, Riverside, California. Served as the biologist for the proposed expansion of the airport. Provided general biological surveys, rare plants surveys, and burrowing owl surveys. Prepared a biological resources technical report in support of an EIR that provided an impact analysis for sensitive biological resources.

Lynwood Urban Bicycle Trail Project, Los Angeles, California. Served as the senior biologist for a proposed two-mile bike path that was located on undeveloped Caltrans land adjacent to the 105 Freeway. Provided a biological survey and NES-MI report preparation.

Burbank Bike Path Project, Los Angeles, California. Served as the project manager and biologist for a proposed three-mile bike path that was located on undeveloped Caltrans land adjacent to the 5 Freeway. Provided a biological survey and NES-MI report preparation.

Azusa Intermodal Parking Facility Project, Azusa, California. Served as the senior biologist for the initial studies for a proposed parking structure. Provided general biological surveys, assisted with the tree survey, and prepared the biological technical report to support the project’s EIR.

Los Alamitos Road Interchange Project, Murrieta, California. Served as the biologist for a proposed interchange project on Interstate 15. Provided a biological survey and NES-MI report preparation.

Santa Ysabel Roadway Project, San Diego County, California. Served as senior biologist for roadway improvement project within the Santa Ysabel Reservation. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Los Angeles County Metropolitan Transportation Authority Regional Connector Transit Corridor, Los Angeles, California. Served as senior biologist for the QA/QC of project technical documents and prepared the Biological Resources section of the EIR.

Municipality

LADPW Los Rancho Los Amigos South Campus Project, Downey, California. Served as the senior biologist for the construction of three new County administrative buildings on the Rancho Los Amigos Campus. Provided general surveys and habitat mapping, assisted with bat acoustic surveys, prepared the biological resources technical report, and prepared the Biological Resources section of the EIR for the project.

Adelanto North 2035 Comprehensively Sustainable Plan, Adelanto, California. Served as project manager and senior biologist to provide biological support for the development of a community plan for 55 square miles in the City of Adelanto and unincorporated San Bernardino County. Provided biological surveys, vegetation mapping, and reporting.

City of Los Angeles Park and Recreation Vegetation Maintenance Support, Los Angeles, California. Served as project manager and senior biologist for the maintenance of vegetation within the City of Los Angeles parks. Coordinated with the City to provide nesting bird surveys, nesting bird plans, and monitoring for numerous parks.

County of San Bernardino Flood Control District Sheep Creek Channelization Project, San Bernardino County, California. Served as the biologist for the channelization of a creek within the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, and jurisdictional waters delineation, reporting, and permitting.

Compton Creek Master Plan, Compton, California. Biologist for a master plan for revitalizing Compton Creek. Provided general surveys, habitat assessment, and vegetation mapping, and prepared the biological resources technical report.

Resource Management

Los Angeles County Sanitation District Bixby Marshland Restoration Monitoring, Carson, California. Served as project manager and senior biologist for a 17 acres wetland and upland habitat restoration project. Set up a scientific study to provide statistical analysis of the project's progress in meeting agencies' criteria for success. Provided annual reporting over seven years that included recommended measures to counter any losses of established plants. Prepared and provided a nesting bird-training program to the maintenance crew.

Los Angeles County Sanitation District Piute Ponds Maintenance, Los Angeles County, California. Served as project biologist for the long-term maintenance of district facilities at the Piute Ponds. Provided surveys, reporting, and impact mitigation analysis for the highly sensitive habitat located within the Mojave Desert.

California Department of Water Resources Arroyo Toad Study, Ventura County, California. Served as the senior biologist for an arroyo toad population study in Piru Creek and its tributaries. Conducted a breeding season study to determine the population dynamics of arroyo toad as part of the mitigation for Pyramid Lake. Arroyo toads observed in all life stages and nighttime adult male vocal surveys conducted.

Bureau of Land Management Desert Tortoise Population and Threat Analysis, Arizona and Nevada. Served as a field biologist for an assessment of threats on the Gold-Butte Pakoon (Arizona and Nevada) desert tortoise population. Technical experience included conducting transect surveys; locating burrows; scat identification; collecting morphometric data; attaching transmitters; and radio-telemetry.

Department of Defense Fort Irwin Desert Tortoise Headstarting Project, San Bernardino County, California. Served as a field biologist for the study of juvenile desert tortoises that had been raised in protected pens before being released. Technical experience included conducting health assessments; collecting morphometric data; attaching transmitters; and radio-telemetry.

NV Energy Dry Lake Solar Energy Center at Harry Allen, Clark County, Nevada. Served as field biologist for desert tortoise population assessment. Duties included conducting transect surveys; locating burrows; scat identification; health assessments, collecting morphometric data; attaching transmitters; and radio-telemetry.

El Centro Solar Energy Transmission Line Project, Imperial County, California. Served as lead field biologist conducting flat-tailed horned lizard studies. Technical experience included conducting transect surveys; scat identification; handling, and collecting morphometric data; attaching transmitters.

Other

Bureau Veritas Third-Party Review for Verizon Cellular Towers NEPA Compliance, California. Served as senior biologist for the review of No Effect Findings reports for more than 100 proposed cell towers throughout California. For tower locations that were determined to have potential to have an effect on a sensitive biological resource, additional surveys and reporting was conducted, including jurisdictional waters delineations, burrowing owl surveys, desert tortoise surveys, and rare plant surveys.

Verizon Cajon Wash Permitting, San Bernardino, California. Served as senior biologist for after-the-fact permitting for impacts to the Cajon Wash. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and agency consultation.

Specialized Training

- Desert Tortoise Health Assessment Training. USFWS. (2015)
- Flat-tailed Horned Lizard Survey Training. Bureau of Land Management

Tracy Park

Associate Biologist

Tracy Park is a biologist with more than three years' experience as a biological field technician and biologist, conducting various wildlife and botanical surveys, biological monitoring, vegetation mapping, as well as technical report writing. Her experience includes conducting surveys for rare plants as well as sensitive wildlife species such as desert tortoise (*Gopherus agassizii*), least Bell's vireio (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax trailii extimus*), arroyo toad (*Anaxyrus californicus*). She has worked throughout Southern California, including the greater Los Angeles Metropolitan area, Antelope Valley, Santa Clarita Valley, Orange County, Santa Barbara County, and Kern River Valley.

Education

University of California, San Diego

BS, Environmental Systems, Ecology Behavior and Evolution, 2014

Project Experience

Development

Newhall Ranch Project, Newhall Land and Farming Company, Santa Clarita, California. As part of a team of biologists, conducted focused native and rare plant surveys including state-endangered San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*), slender mariposa lily (*Calochortus clavatus* var. *gracilis*); Southern California black walnut (*Juglans californica*); and native hollyleaf cherry (*Prunus ilicifolia* var. *ilicifolia*) at multiple proposed housing developments. Also conducted vegetation mapping and pollinator surveys for San Fernando Valley Spineflower.

Smokey Bear Road Mixed-Use Project, Los Angeles County, California. Conducted a wildlife camera study, vegetation mapping, a habitat assessment, evaluation of potential jurisdictional wetlands or waters, for a 41.6-acre commercial mixed-use development. Also assisted with preparation of a biological resources technical report for this survey effort to support CEQA documentation for the project.

Silent Ranch Hillside Subdivision Project, City of Glendora, Los Angeles County, California. Conducted vegetation mapping, a habitat assessment, evaluation of potential jurisdictional wetlands or waters, and general resource mapping for a 13.5-acre housing subdivision development. Also assisted with preparation of a biological resources technical report for this survey effort to support CEQA documentation for the project.

Walnut Hills Senior Village Project, Simi Valley, Ventura County, California. Conducted vegetation mapping, a habitat assessment, evaluation of potential jurisdictional wetlands or waters, and general resource mapping for a 13.5-acre housing development. Also prepared a biological resources technical letter report for this survey effort to support CEQA documentation for the project.

Portola NE Biological Monitoring, Baldwin & Sons LLC, City of Lake Forest, Orange County, California. Served as biological monitor during construction and vegetation removal. Sensitive species included California gnatcatcher (*Polioptila californica*) and burrowing owl (*Athene cunicularia*).

Municipal

Oso Creek Project, Moulton Niguel Water District, City of Mission Viejo, Orange County, California. Conducted pre-construction surveys for nesting birds, two-striped garter snake (*Thamnophis hammondii*), western pond turtle (*Actinemys pallida*), and special-status bats for the Interstate-5 freeway bridge over Oso Creek. Focused bat surveys included a roost assessment, emergence survey, as well as active and passive acoustic monitoring for sensitive bat species such as pallid bat (*Antrozous pallida*) and western red bat (*Lasiurus blossevillii*).

Compton Creek Bridges Project, Los Angeles County Department of Public Works, City of Compton, Los Angeles County, California. Conducted vegetation mapping, a habitat assessment, evaluation of potential jurisdictional wetlands or waters, and general resource mapping for a bridge maintenance project. Prepared the Natural Environment Study – Minimal Impacts report for the project consistent with CEQA.

Old Road Over Castaic Creek Project, Los Angeles County Department of Public Works, Unincorporated Los Angeles County, California. Conducted arroyo toad protocol surveys and focused bat surveys for a bridge seismic retrofit project. Prepared the Natural Environment Study – Minimal Impacts report for the project consistent with CEQA. Focused bat surveys included a roost assessment, emergence survey, as well as active and passive acoustic monitoring for sensitive bat species such as western red bat.

Bridge Preventative Maintenance Program (BPMP) Group 21 Project, Los Angeles County Department of Public Works, Los Angeles County, California. Conducted vegetation mapping, a habitat assessment, evaluation of potential jurisdictional wetlands or waters, and general resource mapping for a bridge maintenance project. Prepared the Natural Environment Study – Minimal Impacts report for the project consistent with CEQA.

Chatsworth Reservoir Mitigation Feasibility Project, LADWP, California. Conducted special-status plant surveys as part of a team of biologists and assisted with a jurisdictional delineation for a 1,092-acre de-commissioned municipal reservoir facility. Mapped sensitive plant species include southern tarplant (*Centromadia parryi* ssp. *australis*) and Santa Susana tarplant (*Deinandra minthornii*).

Haynes Inlet Fence Replacement Project, Los Angeles Department of Water and Power (LADWP), City of Long Beach, California. Conducted a pre-construction assessment and construction monitoring for a fence replacement project located within the coastal zone to ensure compliance with requirements for a Coastal Development Permit. Mapped sensitive biological resources include Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), southern tarplant, and salt marsh vegetation communities.

On-Call Environmental Services, Los Angeles Department of Water and Power (LADWP), California. Conducted pre-construction nesting bird surveys for various LADWP projects, including the Valley-Rinaldi Tower and Transmission Line Upgrade, Sylmar East Converter Station, Valley-Toluca Tower Raising, and Scattergood Generation Station. Prepared nesting bird reports and/or memorandums. Also assisted with vegetation mapping and general biological reconnaissance survey for Bull Creek Fence Replacement Project at the LADWP Van Norman Complex.

Confidential Client, California. Conducted habitat assessment and least Bell's vireo protocol surveys for a 1,340-acre site. Assisted with vegetation mapping, field coordination, and preparation of special-status species survey reports, notification letters, and biological technical letter report for the project consistent with CEQA.

Power Plant 1 & Power Plant 2 Transmission Line Conversion Focused Surveys Project, LADWP, California. Conducted special-status plant surveys, focused arroyo toad protocol surveys as part of a team of biologists, and assisted with a jurisdictional delineation along a linear transmission line project that spans across Santa Clarita, un-incorporated Los Angeles County, and the San Fernando Valley area within the City of Los Angeles. Assisted with field coordination and preparation of special-status species survey reports, notification letters, and biological technical report for the project consistent with CEQA. Sensitive species include slender mariposa lily, Plummer's mariposa lily (*Calochortus plummerae*), and Peirson's morning-glory (*Calystegia peirsonii*).

De Soto Tanks Project, LADWP, Chatsworth, City of Los Angeles, California. Conducted vegetation mapping, habitat assessment, focused burrowing owl protocol surveys, and special-status plant surveys for a municipal water storage project. Assisted with jurisdictional delineation, field coordination, and preparation of biological technical letter report for the project consistent with CEQA.

De Soto Trunk Line Project, LADWP, San Fernando Valley, City of Los Angeles, California. Assisted with vegetation mapping and general biological reconnaissance survey for a municipal trunk line replacement project. Assisted with the preparation of the biological technical report for the project consistent with CEQA plus.

Energy

Edwards Air Force Base (AFB) Solar Project, Terra-Gen, Kern County, California. Conducted a jurisdictional delineation as part of a team of biologists for a 2,829-acre site. The survey focused on delineating waters of the state and followed Mapping Episodic Stream Activity (MESA) guidelines.

Strauss Wind Energy Project, BayWa, Santa Barbara County, California. Conducted vegetation mapping, native grassland mapping, special-status plant surveys, and focused Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) surveys as part of a team of biologists for a 2,971-acre wind farm project.

Tesla-Solar City Nesting Bird Surveys, California. Conducted pre-construction nesting bird surveys for multiple solar carports projects at various school campuses within Walnut Valley Unified School District (USD), Saddleback Valley USD, and Chino Valley USD.

Relevant Previous Experience

Kern River Valley Avian Surveys, Southern Sierra Research Station, Weldon, California. Served as a member of a biological field team to conduct southwestern willow flycatcher protocol surveys in various locations within Kern River Valley, including Audubon California Kern River Preserve, Canebrake Ecological Preserve, and Sequoia National Forest South Fork Wildlife Area. Also conducted brown-headed cowbird (*Molothrus ater*) trapping, avian point counts, western yellow-billed cuckoo (*Coccyzus americanus*) protocol surveys, and flammulated owl (*Psiloscops flammeolus*) nest box surveys.

Vandenberg Air Force Base (AFB) Southwestern Willow Flycatcher Surveys, Southern Sierra Research Station, Vandenberg AFB, California. Served as an avian field technician. Conducted southwestern willow flycatcher protocol surveys in Vandenberg AFB and surrounding riparian areas.

Central Valley Project Conservation Program (CVPCP) Project, Southern Sierra Research Station, Weldon, California. Served as avian field technician and participated in Monitoring Avian Productivity and Survivorship (MAPS) banding stations to assess the success of CVPCP funded restoration efforts. Conducted vegetation surveys in riparian habitats. Also conducted nest searching and monitoring surveys for indicator riparian bird species in the Kern River Valley.

Edwards AFB Desert Tortoise Density Surveys, Redhorse Corporation, Edwards AFB, California. As biological field technician, served as a member of a biological field team to conduct base-wide desert tortoise surveys, covering approximately 9.21 square miles. Walked transects 10–15 meters apart across randomized plots to identify and record desert tortoises and desert tortoise signs. Also documented other sensitive species such as Mohave ground squirrel (Xerospermophilus mohavensis), desert cymopterus (Cymopterus deserticola), and burrowing owl when observed.

Grand River Grasslands Dickcissel Surveys, University of Illinois, Lamoni, Iowa. Served as avian field technician. Conducted spot-mapping surveys for target species, dickcissels (*Spiza americana*), to delineate individual territories within private pastureland and public land managed by the Iowa Department of Natural Resources in the Grand River Grasslands Important Bird Area (IBA). Also conducted nest searching, nest monitoring, arthropod surveys, vegetation surveys, and nesting bird camera studies.

Specialized Training

- Vegetation Mapping Workshop, March 2019. California Native Plant Society.
- CEQA Essentials Workshop, October 2018. California Association of Environmental Professionals.
- Basic Wetland Delineation Course, January 2018. Wetland Training Institute Inc.
- Introductory Plant Families Workshop, May 2018. Jepson Herbarium, University of California, Berkeley.
- Southwestern Willow Flycatcher Workshop, May 2017. Southern Sierra Research Station, Weldon, California.
- Yellow-billed Cuckoo Workshop, July 2017. Southern Sierra Research Station, Weldon, California.
- Unexploded Ordnance Training, June 2017. Vandenberg AFB, California.

APPENDIX B

USFWS IPaC Trust Resource Report
CNDDB Results (Rarefind 5.0)
CNPS Search Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Oat Mountain (3411835) OR Santa Susana (3411836) OR Val Verde (3411846) OR Newhall (3411845) OR Mint Canyon (3411844) OR San Fernando (3411834) OR Calabasas (3411826) OR Canoga Park (3411825) OR Van Nuys (3411824) OR Malibu Beach (3411816) OR Topanga (3411815) OR Beverly Hills (3411814))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Aglaothorax longipennis Santa Monica shieldback katydid	IIORT32020	None	None	G1G2	S1S2	
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Anaxyrus californicus arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Anniella sp. California legless lizard	ARACC01070	None	None	G3G4	S3S4	SSC
Anniella stebbinsi southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Artemisiospiza belli belli Bell's sage sparrow	ABPBX97021	None	None	G5T2T3	S3	WL
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Astragalus brauntonii Braunton's milk-vetch	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
Astragalus pycnostachyus var. lanosissimus Ventura Marsh milk-vetch	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex coulteri Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Atriplex pacifica south coast saltscale	PDCHE041C0	None	None	G4	S2	1B.2
Atriplex parishii Parish's brittlescale	PDCHE041D0	None	None	G1G2	S1	1B.1
Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1	None	None	G5T1	S1	1B.2
Baccharis malibuensis Malibu baccharis	PDAST0W0W0	None	None	G1	S1	1B.1
Berberis nevinii Nevin's barberry	PDBER060A0	Endangered	Endangered	G1	S1	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California Walnut Woodland California Walnut Woodland	CTT71210CA	None	None	G2	S2.1	
Calochortus clavatus var. gracilis slender mariposa-lily	PMLIL0D096	None	None	G4T2T3	S2S3	1B.2
Calochortus fimbriatus late-flowered mariposa-lily	PMLIL0D1J2	None	None	G3	S3	1B.3
Calochortus palmeri var. palmeri Palmer's mariposa-lily	PMLIL0D122	None	None	G3T2	S2	1B.2
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Calystegia peirsonii Peirson's morning-glory	PDCON040A0	None	None	G4	S4	4.2
Carolella busckana Busck's gallmoth	IILEM2X090	None	None	G1G3	SH	
Catostomus santaanae Santa Ana sucker	AFCJC02190	Threatened	None	G1	S1	
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	PDPGN040J1	Proposed Threatened	Endangered	G2T1	S1	1B.1
Chorizanthe parryi var. parryi Parry's spineflower	PDPGN040J2	None	None	G3T2	S2	1B.1
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cismontane Alkali Marsh Cismontane Alkali Marsh	CTT52310CA	None	None	G1	S1.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Deinandra minthornii Santa Susana tarplant	PDAST4R0J0	None	Rare	G2	S2	1B.2
Diadophis punctatus modestus San Bernardino ringneck snake	ARADB10015	None	None	G5T2T3	S2?	
Dithyrea maritima beach spectaclepod	PDBRA10020	None	Threatened	G1	S1	1B.1
Dodecahema leptoceras slender-horned spineflower	PDPGN0V010	Endangered	Endangered	G1	S1	1B.1
Dudleya blochmaniae ssp. blochmaniae Blochman's dudleya	PDCRA04051	None	None	G3T2	S2	1B.1
Dudleya cymosa ssp. marcescens marcescent dudleya	PDCRA040A3	Threatened	Rare	G5T2	S2	1B.2
Dudleya cymosa ssp. ovatifolia Santa Monica dudleya	PDCRA040A5	Threatened	None	G5T1	S1	1B.1
Dudleya multicaulis many-stemmed dudleya	PDCRA040H0	None	None	G2	S2	1B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Euderma maculatum spotted bat	AMACC07010	None	None	G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphydryas editha quino quino checkerspot butterfly	IILEPK405L	Endangered	None	G5T1T2	S1S2	
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Gasterosteus aculeatus williamsoni unarmored threespine stickleback	AFCPA03011	Endangered	Endangered	G5T1	S1	FP
Gila orcuttii arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Harpagonella palmeri Palmer's grapplinghook	PDBOR0H010	None	None	G4	S3	4.2
Helianthus inexpectatus Newhall sunflower	PDAST4N250	None	None	G1	S1	1B.1
Horkelia cuneata var. puberula mesa horkelia	PDROS0W045	None	None	G4T1	S1	1B.1
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Isocoma menziesii var. decumbens decumbent goldenbush	PDAST57091	None	None	G3G5T2T3	S2	1B.2
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Lepus californicus bennettii San Diego black-tailed jackrabbit	AMAEB03051	None	None	G5T3T4	S3S4	SSC
Lupinus paynei Payne's bush lupine	PDFAB2B580	None	None	G1Q	S1	1B.1
Macrotus californicus California leaf-nosed bat	AMACB01010	None	None	G4	S3	SSC
Mainland Cherry Forest Mainland Cherry Forest	CTT81820CA	None	None	G1	S1.1	
Malacothamnus davidsonii Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
Microtus californicus stephensi south coast marsh vole	AMAFF11035	None	None	G5T1T2	S1S2	SSC
Monardella hypoleuca ssp. hypoleuca white-veined monardella	PDLAM180A5	None	None	G4T3	S3	1B.3
Myotis ciliolabrum western small-footed myotis	AMACC01140	None	None	G5	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Navarretia fossalis spreading navarretia	PDPLM0C080	Threatened	None	G2	S2	1B.1
Navarretia ojaiensis Ojai navarretia	PDPLM0C130	None	None	G2	S2	1B.1
Navarretia setiloba Piute Mountains navarretia	PDPLM0C0S0	None	None	G2	S2	1B.1
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Nolina cismontana chaparral nolina	PMAGA080E0	None	None	G3	S3	1B.2
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	None	G5T1Q	S1	
Onychomys torridus ramona southern grasshopper mouse	AMAFF06022	None	None	G5T3	S3	SSC
Opuntia basilaris var. brachyclada short-joint beavertail	PDCAC0D053	None	None	G5T3	S3	1B.2
Orcuttia californica California Orcutt grass	PMPOA4G010	Endangered	Endangered	G1	S1	1B.1
Pentachaeta lyonii Lyon's pentachaeta	PDAST6X060	Endangered	Endangered	G1	S1	1B.1
Perognathus longimembris brevinasus Los Angeles pocket mouse	AMAFD01041	None	None	G5T1T2	S1S2	SSC
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Quercus dumosa Nuttall's scrub oak	PDFAG050D0	None	None	G3	S3	1B.1
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rana muscosa southern mountain yellow-legged frog	AAABH01330	Endangered	Endangered	G1	S1	WL
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	AFCJB3705K	None	None	G5T1	S1	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Riversidian Alluvial Fan Sage Scrub Riversidian Alluvial Fan Sage Scrub	CTT32720CA	None	None	G1	S1.1	
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Socalchemmis gertschi Gertsch's socalchemmis spider	ILARAU7010	None	None	G1	S1	
Southern California Coastal Lagoon Southern California Coastal Lagoon	CALE1220CA	None	None	GNR	SNR	
Southern California Steelhead Stream Southern California Steelhead Stream	CARE2310CA	None	None	GNR	SNR	
Southern California Threespine Stickleback Stream Southern California Threespine Stickleback Stream	CARE2320CA	None	None	GNR	SNR	
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	CTT61330CA	None	None	G3	S3.2	
Southern Mixed Riparian Forest Southern Mixed Riparian Forest	CTT61340CA	None	None	G2	S2.1	
Southern Riparian Scrub Southern Riparian Scrub	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	
Southern Willow Scrub Southern Willow Scrub	CTT63320CA	None	None	G3	S2.1	
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Spermolepis lateriflora western bristly scaleseed	PDAPI23080	None	None	G5	SH	2A
Symphyotrichum greatae Greata's aster	PDASTE80U0	None	None	G2	S2	1B.3
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Thelypteris puberula var. sonorensis Sonoran maiden fern	PPTHE05192	None	None	G5T3	S2	2B.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 127

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

69 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3411835, 3411836, 3411846, 3411845, 3411844, 3411834, 3411826, 3411825, 3411824, 3411816 3411815 and 3411814;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthoscyphus parishii var. parishii	Parish's oxytheca	Polygonaceae	annual herb	Jun-Sep	4.2	S3S4	G4?T3T4
Astragalus brauntonii	Braunton's milk-vetch	Fabaceae	perennial herb	Jan-Aug	1B.1	S2	G2
Astragalus pycnostachyus var. lanosissimus	Ventura marsh milk-vetch	Fabaceae	perennial herb	(Jun)Aug-Oct	1B.1	S1	G2T1
Astragalus tener var. titi	coastal dunes milk-vetch	Fabaceae	annual herb	Mar-May	1B.1	S1	G2T1
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	1B.2	S1S2	G3
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	1B.2	S2	G4
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Baccharis malibuensis	Malibu baccharis	Asteraceae	perennial deciduous shrub	Aug	1B.1	S1	G1
Berberis nevinii	Nevin's barberry	Berberidaceae	perennial evergreen shrub	(Feb)Mar-Jun	1B.1	S1	G1
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	4.2	S3S4	G3G4
Calochortus clavatus var. clavatus	club-haired mariposa lily	Liliaceae	perennial bulbiferous herb	(Mar)May-Jun	4.3	S3	G4T3
Calochortus clavatus var. gracilis	slender mariposa lily	Liliaceae	perennial bulbiferous herb	Mar-Jun(Nov)	1B.2	S2S3	G4T2T3
Calochortus fimbriatus	late-flowered mariposa lily	Liliaceae	perennial bulbiferous herb	Jun-Aug	1B.3	S3	G3
	Palmer's mariposa	Liliaceae	perennial	Apr-Jul	1B.2	S2	G3T2

Calochortus palmeri var. palmeri	lily		bulbiferous herb				
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	4.2	S4	G4
Calystegia peirsonii	Peirson's morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	4.2	S4	G4
Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	3	S4	G4
Canbya candida	white pygmy-poppy	Papaveraceae	annual herb	Mar-Jun	4.2	S3S4	G3G4
Castilleja gleasoni	Mt. Gleason paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	May-Jun(Sep)	1B.2	S2	G2
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov	1B.1	S2	G3T2
Cercocarpus betuloides var. blancheae	island mountain-mahogany	Rosaceae	perennial evergreen shrub	Feb-May	4.3	S4	G5T4
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	1B.2	S1	G4?T1
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	1B.1	S1	G2T1
Chorizanthe parryi var. parryi	Parry's spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S2	G3T2
Clinopodium mimuloides	monkey-flower savory	Lamiaceae	perennial herb	Jun-Oct	4.2	S3	G3
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Deinandra minthornii	Santa Susana tarplant	Asteraceae	perennial deciduous shrub	Jul-Nov	1B.2	S2	G2
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur	Ranunculaceae	perennial herb	May-Jun	4.3	S4	G4T4
Dithyrea maritima	beach spectaclepod	Brassicaceae	perennial rhizomatous herb	Mar-May	1B.1	S1	G1
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S1	G1
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.1	S2	G3T2
Dudleya cymosa ssp. agourensis	Agoura Hills dudleya	Crassulaceae	perennial herb	May-Jun	1B.2	S1	G5T1
Dudleya cymosa ssp. marcescens	marcescent dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	S2	G5T2
Dudleya cymosa ssp. ovatifolia	Santa Monica dudleya	Crassulaceae	perennial herb	Mar-Jun	1B.1	S1	G5T1
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	4.2	S3	G4
Helianthus inexpectatus	Newhall sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	1B.1	S1	G1

Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1
Hulsea vestita ssp. parryi	Parry's sunflower	Asteraceae	perennial herb	Apr-Aug	4.3	S4	G5T4
Isocoma menziesii var. decumbens	decumbent goldenbush	Asteraceae	perennial shrub	Apr-Nov	1B.2	S2	G3G5T2T3
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S4	G4
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	4.3	S3	G5T3
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	4.2	S4?	G4T4?
Lupinus paynei	Payne's bush lupine	Fabaceae	perennial shrub	Mar-Apr(May-Jul)	1B.1	S1	G1Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	Jun-Jan	1B.2	S2	G2
Monardella hypoleuca ssp. hypoleuca	white-veined monardella	Lamiaceae	perennial herb	(Apr)May-Aug(Sep-Dec)	1B.3	S3	G4T3
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia ojaiensis	Ojai navarretia	Polemoniaceae	annual herb	May-Jul	1B.1	S2	G2
Navarretia setiloba	Piute Mountains navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul	1B.2	S3	G3
Opuntia basilaris var. brachyclada	short-joint beavertail	Cactaceae	perennial stem succulent	Apr-Jun(Aug)	1B.2	S3	G5T3
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	1B.1	S1	G1
Pentachaeta lyonii	Lyon's pentachaeta	Asteraceae	annual herb	(Feb)Mar-Aug	1B.1	S1	G1
Phacelia hubbyi	Hubby's phacelia	Hydrophyllaceae	annual herb	Apr-Jul	4.2	S4	G4
Phacelia mohavensis	Mojave phacelia	Hydrophyllaceae	annual herb	Apr-Aug	4.3	S4	G4Q
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	2B.2	S2	G4
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	Feb-Apr(May-Aug)	1B.1	S3	G3
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	S2	G4
Spermolepis lateriflora	western bristly scaleseed	Apiaceae	annual herb	Mar-Apr	2A	SH	G5
Stylocline masonii	Mason's neststraw	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Symphyotrichum greatae	Greata's aster	Asteraceae	perennial	Jun-Oct	1B.3	S2	G2

			rhizomatous herb				
Thelypteris puberula var. sonorensis	Sonoran maiden fern	Thelypteridaceae	perennial rhizomatous herb	Jan-Sep	2B.2	S2	G5T3

Suggested Citation

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Information

- About the Inventory
- About the Rare Plant Program
- CNPS Home Page
- About CNPS
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Contributors

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

Questions and Comments

rareplants@cnps.org

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

IPaC resource list

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

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

Location

Los Angeles County, California

Local office

Ventura Fish And Wildlife Office

☎ (805) 644-1766
📠 (805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

Endangered species

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

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

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

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

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

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

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

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

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

Birds

NAME	STATUS

California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
Coastal California Gnatcatcher Polioptila californica californica There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp Streptocephalus woottoni There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8148	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS

Braunton's Milk-vetch Astragalus brauntonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5674	Endangered
California Orcutt Grass Orcuttia californica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4923	Endangered
Gambel's Watercress Rorippa gambellii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4201	Endangered
Lyon's Pentachaeta Pentachaeta lyonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4699	Endangered
Marsh Sandwort Arenaria paludicola No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered
Slender-horned Spineflower Dodecahema leptoceras No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4007	Endangered
Spreading Navarretia Navarretia fossalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1334	Threatened

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird Selasphorus sasin

Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

California Thrasher Toxostoma redivivum

Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa

Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Costa's Hummingbird Calypte costae

Breeds Jan 15 to Jun 10

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei

Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Lewis's Woodpecker Melanerpes lewis

Breeds Apr 20 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Marbled Godwit Limosa fedoa

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii

Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

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

Probability of Presence (🟩)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

Breeding Season (🟨)

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

Survey Effort (|)

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

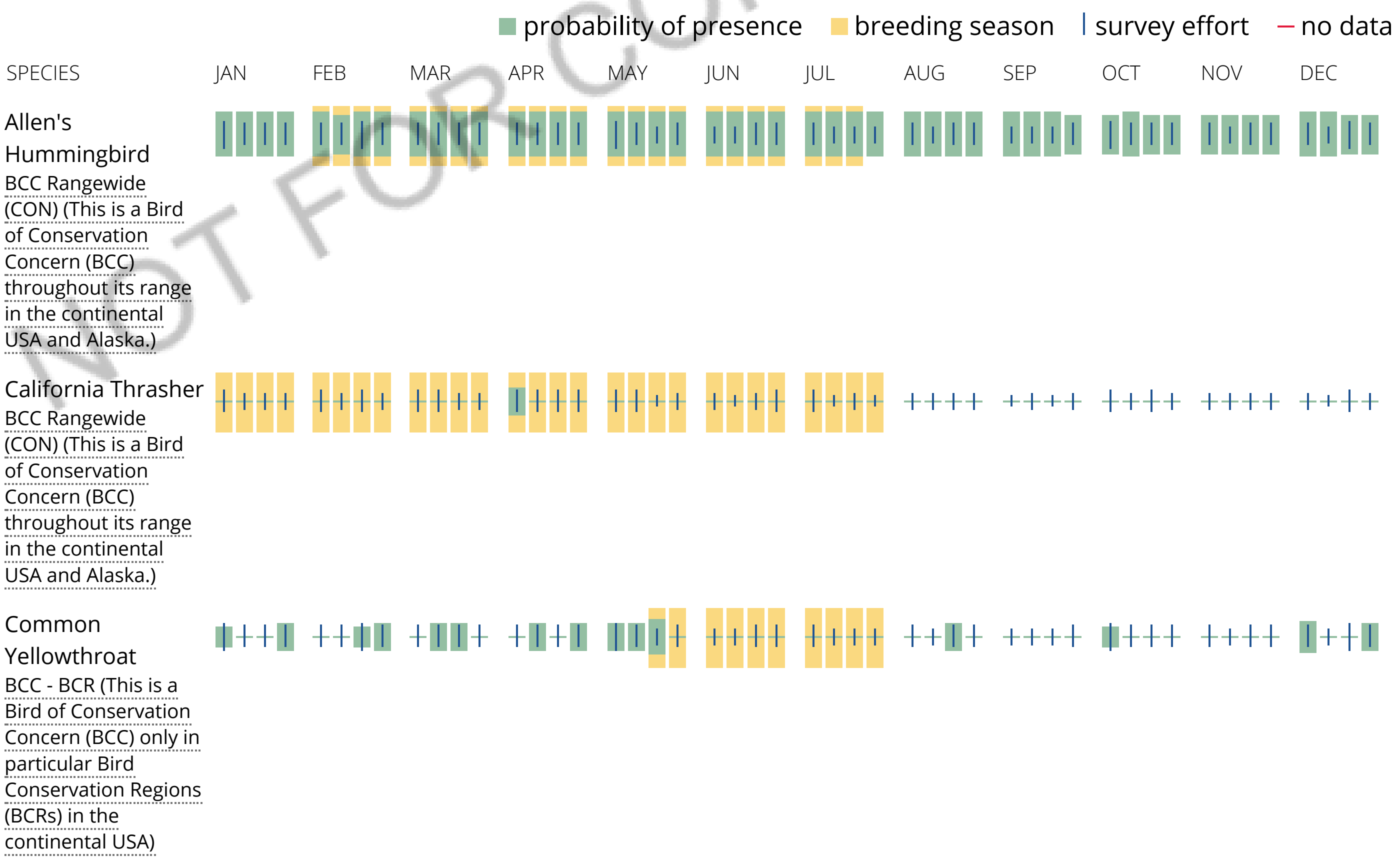
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

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

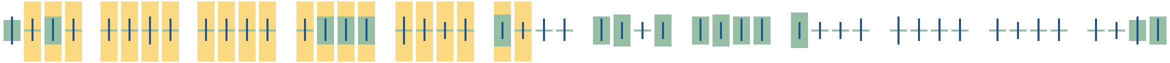


Allen's Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

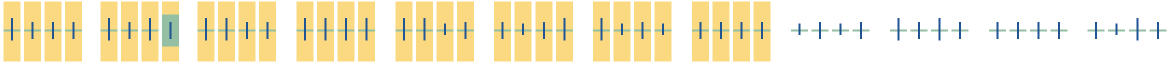
California Thrasher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

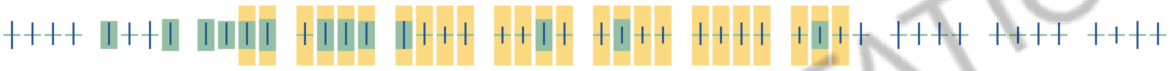
Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



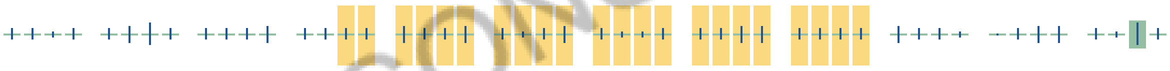
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



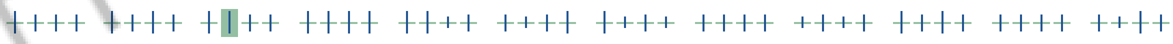
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



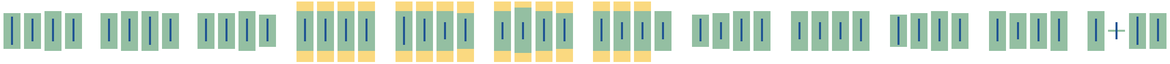
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



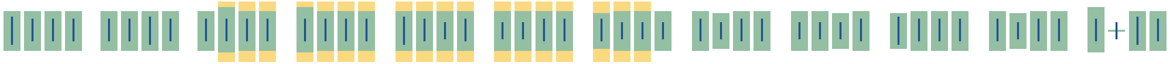
Marbled Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



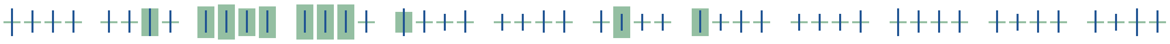
Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



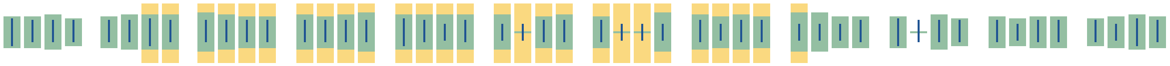
Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

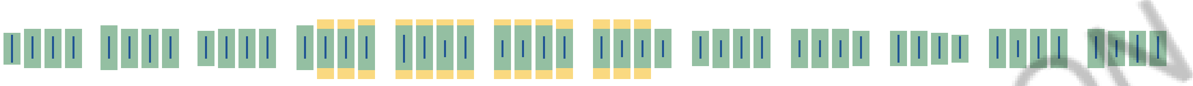


Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

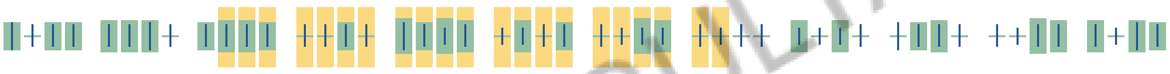


SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



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



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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBCr

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

APPENDIX C

Photo Documentation

APPENDIX C
Photo Documentation

Photo 1: Representative photo of Urban/Developed Areas on Mason Avenue.

Photo 2: Representative photo of Disturbed Habitat along the railroad tracks that the project alignment crosses.

Photo 3: Facing north toward Browns Canyon Creek, where it crosses the project alignment along Roscoe Boulevard.

Photo 4: Typical industrial/retail business along Mason Avenue.

	
Photo 5: Upland Mustards within the fenced potential staging area.	**Photo 6:** Non-native Grasslands adjacent to the potential staging area.
	
Photo 7: California Buckwheat Scrub north of the potential staging area.	**Photo 8:** California Buckwheat Scrub, Disturbed Habitat, and Upland Mustards north of the potential staging area.

APPENDIX D

Plant Compendium

APPENDIX D
Plant Compendium

* signifies introduced (non-native) species

VASCULAR SPECIES

GYMNOSPERMS AND GNETOPHYTES

CUPRESSACEAE—CYPRESS FAMILY

* *Cedrus deodara*—Deodar cedar
* *Cupressus sempervirens*—Italian cypress

PINACEAE—PINE FAMILY

* *Pinus canariensis*—Canary Island pine
* *Pinus halepensis*—Aleppo pine

MAGNOLIIDS

MAGNOLIACEAE—MAGNOLIA FAMILY

* *Liriodendron tulipifera*—tuliptree

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Hesperoyucca whipplei—chaparral yucca

ARECACEAE—PALM FAMILY

* *Phoenix canariensis*—Canary Island date palm
* *Syagrus romanzoffiana*—queen palm
* *Washingtonia robusta*—Washington fan palm

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
* *Bromus diandrus*—ripgut brome
* *Bromus madritensis* ssp. *rubens*—red brome

EUDICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac
* *Schinus molle*—Peruvian peppertree

APOCYNACEAE—DOGBANE FAMILY

* *Nerium oleander*—oleander

ASTERACEAE—SUNFLOWER FAMILY

Artemisia californica—California sagebrush
Ambrosia psilostachya—western ragweed
* *Centaurea melitensis*—Maltese star-thistle
Corethrogyne filaginifolia—common sand aster
Deinandra fasciculata—clustered tarweed
Helianthus annuus—common sunflower
Heterotheca grandiflora—telegraphweed
* *Sonchus oleraceus*—common sowthistle

BIGNONIACEAE—BIGNONIA FAMILY

Chilopsis linearis—desert-willow
* *Jacaranda mimosifolia*—blue jacaranda

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—shortpod mustard

CONVOLVULACEAE—MORNING-GLORY FAMILY

Cuscuta californica var. *californica*—chaparral dodder

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed
* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

Acmispon glaber var. *glaber*—common deerweed

FAGACEAE—OAK FAMILY

Quercus agrifolia—coast live oak

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound
Salvia mellifera—black sage
Trichostema lanceolatum—vinegarweed

HAMAMELIDACEAE—WITCH-HAZEL FAMILY

* *Liquidambar styraciflua*—sweetgum

LYTHRACEAE—LOOSESTRIFE FAMILY

* *Lagerstroemia indica*—crapemyrtle

MAGNOLIACEAE—MAGNOLIA FAMILY

* *Magnolia grandiflora*—southern magnolia

MORACEAE—MULBERRY FAMILY

* *Ficus microcarpa*—Indian laurel fig

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus camaldulensis*—river redgum
* *Eucalyptus citriodora*—lemonscented gum
* *Melaleuca viminalis*—weeping bottlebrush

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia*—California four o'clock

OLEACEAE—OLIVE FAMILY

* *Fraxinus uhdei*—evergreen ash
* *Olea europaea*—European olive

ONAGRACEAE—EVENING PRIMROSE FAMILY

Clarkia purpurea—winecup clarkia

PITTOSPORACEAE—PITTOSPORUM FAMILY

* *Pittosporum undulatum*—Victorian boxwood

PLATANACEAE—SYCAMORE FAMILY

* *Platanus x hispanica*—London planetree
Platanus racemosa—California sycamore

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *foliolosum*—Eastern Mojave buckwheat

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus crassifolius—hoary leaf ceanothus

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum—chamise
Heteromeles arbutifolia—toyon
* *Prunus cerasifera*—cherry plum

SALICACEAE—WILLOW FAMILY

Populus fremontii—Fremont cottonwood

SAPINDACEAE—SOAPBERRY FAMILY

* *Cupaniopsis anacardioides*—carrotwood

SIMAROUBACEAE—QUASSIA FAMILY

* *Ailanthus altissima*—tree of heaven

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple
* *Nicotiana glauca*—tree tobacco

APPENDIX E

Wildlife Compendium

APPENDIX E
Wildlife Compendium

* signifies invasive (non-native) species

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Melozone crissalis—California towhee

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Spinus tristis—American goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe

Sayornis saya—Say’s phoebe

Tyrannus vociferans—Cassin’s kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna’s hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus corax—common raven

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Chondestes grammacus—lark sparrow
Passerculus sandwichensis—savannah sparrow

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

* *Columba livia*—rock pigeon (rock dove)
* *Streptopelia decaocto*—Eurasian collared-dove*
Zenaida macroura—mourning dove

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

MAMMAL

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES

Procyon lotor—raccoon

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Uta stansburiana—common side-blotched lizard

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APPENDIX F

Special-Status Plant Species Potential to Occur

APPENDIX F
Special-Status Plant Species Potential to Occur

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	None/None/4.2	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/June–Sep/4000–8530	Not expected to occur. The project site is outside of the species' known elevation range and lacks suitable habitat (i.e., marshes and swamps) for this species.
Arenaria paludicola	marsh sandwort	FE/SE/1B.1	Marshes and swamps (freshwater or brackish); sandy, openings/perennial stoloniferous herb/May–Aug/5–560	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., marshes and swamps) for this species.
Astragalus brauntonii	Braunton's Milk-vetch	FE/None/1B.1/S[a]	Chaparral, Coastal scrub, Valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers/perennial herb/Jan–Aug/10–2100	Not expected to occur. The project site lacks suitable habitat (i.e., sandstone with carbonate layers) for this species.
Astragalus pycnostachyus var. *lanosissimus*	Ventura marsh milk-vetch	FE/SE/1B.1/S[b]	Coastal dunes, Coastal scrub, Marshes and swamps (edges, coastal salt or brackish)/perennial herb/(June)Aug–Oct/0–115	Not expected to occur. The project site is outside of the species' known elevation range and lacks suitable habitat (i.e., coastal salt or brackish habitats) associated with the species.
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1/S[b]	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/0–165	Not expected to occur. The project site is outside of the species' known elevation range and lacks suitable vernally mesic habitat associated with the species.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/5–1510	Not expected to occur. The project site is dominated by dense urban development and lacks the alkaline or clay soils associated with the species.
Atriplex pacifica	south coast saltscale	None/None/1B.2/S[b]	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur. The project site is outside of the species' known elevation range.
Atriplex parishii	Parish's brittlescale	None/None/1B.1/S[b]	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/80–6235	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chenopod scrub, playas, or vernal pool habitat) for this species.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2/S[b]	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat for this species.

APPENDIX F (Continued)

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Baccharis malibuensis	Malibu baccharis	None/None/1B.1/S[b]	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/perennial deciduous shrub/Aug/490–1000	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat for this species. Minimal coastal scrub habitat occurs north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1/S[a]	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2705	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat for this species. Minimal coastal scrub habitat occurs north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.
Calandrinia breweri	Brewer’s calandrinia	None/None/4.2/S[b]	Chaparral, Coastal scrub; sandy or loamy, disturbed project sites and burns/annual herb/(Jan)Mar–June/30–4005	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chaparral, coastal scrub) for this species.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2/S[a]	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/45–2295	Low potential to occur. The project site is dominated by dense urban development, with minimal compacted and routinely disturbed non-native grassland habitat limited to the potential staging area.
Calochortus clavatus var. *gracilis*	slender mariposa lily	None/None/1B.2/None	Chaparral, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/Mar–June(Nov)/1045–3280	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Calochortus fimbriatus	late-flowered mariposa lily	None/None/1B.3/None	Chaparral, Cismontane woodland, Riparian woodland; often serpentinite/perennial bulbiferous herb/June–Aug/900–6250	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chaparral, cismontane woodland, riparian woodland) for this species. In addition, the project site lacks serpentinite soils typically preferred by this species
Calochortus plummerae	Plummer's mariposa lily	None/None/4.2/S[b]	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; granitic, rocky/perennial bulbiferous herb/May–July/325–5575	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Calystegia peirsonii	Peirson's morning-glory	None/None/4.2/S[b]	Chaparral, Chenopod scrub, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/Apr–June/95–4920	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3/S[b]	Coastal bluff scrub, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Canbya candida	white pygmy-poppy	None/None/4.2/None	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland; gravelly, sandy, granitic/annual herb/Mar–June/1965–4790	Not expected to occur. The project site is outside of the species' known elevation range and lacks suitable habitat (i.e., Joshua tree woodland, Mojavean desert scrub, or pinyon and juniper woodland) for this species.
Castilleja gleasoni	Mt. Gleason paintbrush	None/SR/1B.2	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; granitic/perennial herb (hemiparasitic)/May–June(Sep)/2180–7120	Not expected to occur. Outside the range of the species.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/S[a]	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	None/None/4.3/S[b]	Closed-cone coniferous forest, Chaparral/perennial evergreen shrub/Feb–May/95–1970	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., closed-cone coniferous forest, chaparral) for this species.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2/S[b]	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The project site is outside of the species' known elevation range and lacks suitable habitat (i.e., coastal dunes or marshes and swamps) for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Chorizanthe parryi var. f*ernandina*	San Fernando Valley spineflower	FC/SE/1B.1/S[b]	Coastal scrub (sandy), Valley and foothill grassland/annual herb/Apr–July/490–4005	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. The closest documented occurrence for this species is approximately 1 mile west of the project site; however, this specimen was collected in 1901 and much development has occurred in the region since (CCH 2019).
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/None/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; sandy or rocky, openings/annual herb/Apr–June/900–4005	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Clinopodium mimuloides	monkey-flower savory	None/None/4.2	Chaparral, North Coast coniferous forest; streambanks, mesic/perennial herb/June–Oct/1000–5905	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., Chaparral and North Coast coniferous forest) for this species.
Convolvulus simulans	small-flowered morning-glory	None/None/4.2/S[b]	Chaparral (openings), Coastal scrub, Valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/95–2430	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. Additionally, the action area lacks clay and serpentine seeps preferred by this species.
Deinandra minthornii	Santa Susana tarplant	None/SR/1B.2/S[b]	Chaparral, Coastal scrub; rocky/perennial deciduous shrub/July–Nov/915–2495	Low potential to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., rocky) for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. This habitat is limited and relatively isolated, without the sandstone outcrops that the species is associated with. This species is known to occur throughout the Santa Susana Mountains and the closest documented occurrence is approximately 0.9 mile west of the potential staging area (CDFW 2019).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Deinandra paniculata	paniculate tarplant	None/None/4.2	Coastal scrub, Valley and foothill grassland, Vernal pools; usually vernally mesic, sometimes sandy/annual herb/(Mar)Apr–Nov(Dec)/80–3085	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	None/None/4.3	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland/perennial herb/May–June/3280–8530	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Dithyrea maritima	beach spectaclepod	None/ST/1B.1/S[b]	Coastal dunes, Coastal scrub (sandy)/perennial rhizomatous herb/Mar–May/5–165	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1/S[b]	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr–June/655–2495	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/S[b]	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/15–1475	Not expected to occur. Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. Additionally, the action area lacks soils (i.e., rocky, clay, or serpentinite) typically preferred by this species.
Dudleya cymosa ssp. *agourensis*	Agoura Hills dudleya	FT/None/1B.2/None	Chaparral, Cismontane woodland; rocky, volcanic/perennial herb/May–June/655–1640	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chaparral, cismontane woodland) for this species.
Dudleya cymosa ssp. *marcescens*	marcescent dudleya	FT/SR/1B.2/S[b]	Chaparral; volcanic, rocky/perennial herb/Apr–July/490–1705	Not expected to occur. The project site is dominated by dense urban development and lacks suitable chaparral habitat for this species. The project site also lacks volcanic, rocky soils typically preferred by this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Dudleya cymosa ssp. *ovatifolia*	Santa Monica dudleya	FT/None/1B.1/S[b]	Chaparral, Coastal scrub; volcanic or sedimentary, rocky/perennial herb/Mar–June/490–5495	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2/S[a]	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/45–2590	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Harpagonella palmeri	Palmer's grappling hook	None/None/4.2/None	Chaparral, Coastal scrub, Valley and foothill grassland; Clay; open grassy areas within shrubland/annual herb/Mar–May/65–3135	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. Additionally, the action area lacks clay soils typically preferred by this species.
Helianthus inexpectatus	Newhall sunflower	None/None/1B.1	Marshes and swamps, Riparian woodland; freshwater, seeps/perennial rhizomatous herb/Aug–Oct/1000–1000	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., marshes and swamps, riparian woodland) for this species.
Hordeum intercedens	vernal barley	None/None/3.2/None	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools/annual herb/Mar–June/15–3280	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. Additionally, the action area lacks saline flats, depressions, and pools typically associated with the species.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1/None	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Hulsea vestita ssp. *parryi*	Parry's sunflower	None/None/4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; granitic or carbonate, rocky, openings/perennial herb/Apr–Aug/4490–9500	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest) for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Juglans californica	Southern California black walnut	None/None/4.2/S[a]	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2955	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/S[b]	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4005	Not expected to occur. The project site lacks suitable habitat (i.e., marshes and swamps, playas, or vernal pools) for this species.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Chaparral, Coastal scrub/annual herb/Jan–July/0–2905	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2/S[a]	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; openings/perennial bulbiferous herb/Mar–July(Aug)/95–5905	Not expected to occur. Coastal scrub in the action area is limited to an area north of the potential staging area. This habitat is limited and relatively isolated, surrounded by disturbed habitat and heavily urbanized development (i.e. residential housing, freeway structures).
Lupinus paynei	Payne's bush lupine	None/None/3.1/None	Coastal scrub, Riparian scrub, Valley and foothill grassland; Sandy/perennial shrub/Mar–Apr(May–July)/720–1380	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Malacothamnus davidsonii	Davidson's bush-mallow	None/None/1B.2/S[b]	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/perennial deciduous shrub/June–Jan/605–3740	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.
Monardella hypoleuca ssp. *hypoleuca*	white-veined monardella	None/None/1B.3/None	Chaparral, Cismontane woodland/perennial herb/(Apr)May–Aug(Sep–Dec)/160–5005	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chaparral, cismontane woodland) for this species.
Nama stenocarpa	mud nama	None/None/2B.2/S[a]	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/15–1640	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., marshes and swamps) for this species.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1085	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., marshes and swamps) for this species.
Navarretia fossalis	Spreading navarretia	FT/None/1B.1/None	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools/annual herb/Apr–June/95–2150	Not expected to occur. The project site lacks suitable habitat (i.e., chenopod scrub, marshes and swamps, playas, vernal pools) for this species.
Navarretia ojaiensis	Ojai navarretia	None/None/1B.1/None	Chaparral (openings), Coastal scrub (openings), Valley and foothill grassland/annual herb/May–July/900–2035	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Navarretia setiloba	Piute Mountains navarretia	None/None/1B.1	Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland; clay or gravelly loam/annual herb/Apr–July/935–6890	Not expected to occur. The project site lacks suitable habitat (i.e., cismontane woodland, pinyon and juniper woodland, valley and foothill grassland) for this species.
Nolina cismontana	chaparral nolina	None/None/1B.2/None	Chaparral, Coastal scrub; sandstone or gabbro/perennial evergreen shrub/(Mar)May–July/455–4185	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/perennial stem succulent/Apr–June(Aug)/1390–5905	Not expected to occur. The project site is outside the range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Orcuttia californica	California Orcutt grass	FE/SE/1B.1/S[b]	Vernal pools/annual herb/Apr–Aug/45–2165	Not expected to occur. The project site lacks suitable habitat (i.e., cismontane woodland, pinyon and juniper woodland, valley and foothill grassland) for this species.
Pentachaeta lyonii	Lyon's pentachaeta	FE/SE/1B.1/ S[b]	Chaparral (openings), Coastal scrub, Valley and foothill grassland; rocky, clay/annual herb/(Feb)Mar–Aug/95–2265	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the project site lacks clay soils typically preferred by this species.
Phacelia hubbyi	Hubby's phacelia	None/None/4.2/None	Chaparral, Coastal scrub, Valley and foothill grassland; gravelly, rocky, talus/annual herb/Apr–July/0–3280	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the project site lacks rocky, talus conditions typically preferred by this species.
Phacelia mohavensis	Mojave phacelia	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; sandy or gravelly/annual herb/Apr–Aug/4590–8200	Not expected to occur. The project site lacks suitable habitat (i.e., cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland) for this species.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/None	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/45–1310	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area; however, this conspicuous species was not observed during the surveys of the area.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/45–5020	Not expected to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for this species. Coastal scrub in the action area is limited to an area north of the potential staging area. Additionally, the action area lacks mesic habitat preferred by this species.
Spermolepis lateriflora	western bristly scaleseed	None/None/2A/None	Sonoran desert scrub; Rocky or sandy/annual herb/Mar–Apr/1195–2200	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., Sonoran desert scrub) for this species.
Stylocline masonii	Mason's neststraw	None/None/1B.1	Chenopod scrub, Pinyon and juniper woodland; sandy/annual herb/Mar–May/325–3935	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., chenopod scrub, pinyon and juniper woodland) for this species.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; mesic/perennial rhizomatous herb/June–Oct/980–6595	Not expected to occur. The project site is dominated by dense urban development and lacks suitable vernally mesic habitat preferred by this species.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None/2B.2	Meadows and seeps (seeps and streams)/perennial rhizomatous herb/Jan–Sep/160–2000	Not expected to occur. The project site is dominated by dense urban development and lacks suitable habitat (i.e., meadows and seeps) for this species.

Notes:

[1] Status abbreviations:

FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate for listing
CE: State listed as endangered
CR: State Rare
CRPR List 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
CRPR List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR List 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
CRPR List 3: Plants About Which More Information is Needed - A Review List
CRPR List 4: Plants of Limited Distribution - A Watch List
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

[2] Sensitive Species within the City of Los Angeles (City of Los Angeles 2006)
  a: Potential to occur within project site since known to occur in Zone 2
  b: Occurrence is known in other zones or is unknown; however, the species has potential to occur within project site

[3] Vicinity refers to records within the Oat Mountain, Canoga Park, Santa Susana, San Fernando, Calabasas, Van Nuys, Malibu Beach, Topanga, and Beverly Hills USGS 7.5-minute quadrangles.

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APPENDIX G

Special-Status Wildlife Species Potential to Occur

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Special-Status Wildlife Species Potential to Occur

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
		Invertebrates		
Branchinecta lynchi	vernal pool fairy shrimp	FT/None/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	Not expected to occur. The project site and action area lacks suitable habitat (i.e., vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats) for the species.
Euphydryas editha quino	quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta*, *Antirrhinum coulterianum*, and Plantago patagonica (Silverado Occurrence Complex)	Low potential to occur. The project site is surrounded primarily by residential and commercial development and lacks suitable habitat for the species. Coastal scrub in the action area is limited to an area north of the potential staging area.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/S[b]	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The project site and action area lacks suitable habitat (i.e., vernal pools, non-vegetated ephemeral pools) for the species.
		Fish		
Catostomus santaanae	Santa Ana sucker	FT/None/S[b]	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Eucyclogobius newberryi	tidewater goby	FE/SSC/S[b]	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. The project site and action area lacks suitable habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/FP, SE	Slow-moving and backwater areas	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Gila orcuttii	arroyo chub	None/SSC/S[b]	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Oncorhynchus mykiss irideus	southern steelhead - southern California DPS	None/SSC/S[b]	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
		Amphibians		
Anaxyrus californicus	arroyo toad	FE/SSC/S[a]	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Rana draytonii	California red-legged frog	FT/SSC/S[a]	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL/S[a]	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Spea hammondii	western spadefoot	None/SSC/S[b]	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. No suitable habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species. Low nesting and foraging potential. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Taricha torosa	California newt	None/SSC/None	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Reptiles				
Actinemys marmorata	western pond turtle	None/SSC/S[a]	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Anniella pulchra	California legless lizard	None/SSC/S[a]	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	Low potential to occur. The project site is surrounded primarily by residential and commercial development. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Arizona elegans occidentalis	California glossy snake	None/SSC	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Low potential to occur. The project site is surrounded primarily by residential and commercial development. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Low potential to occur. The project site is surrounded primarily by residential and commercial development. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Diadophis punctatus modestus	San Bernardino ring-necked snake	None/None/None	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland	Low potential to occur. The project site is surrounded primarily by residential and commercial development. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/S[a]	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Low potential to occur. The project site is surrounded primarily by residential and commercial development. Coastal scrub in the action area is limited to an area north of the potential staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.

APPENDIX G (Continued)

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Thamnophis hammondii	two-striped gartersnake	None/SSC/S[a]	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species. The vertical sided, concrete flood channel that the project site crosses lacks aquatic conditions preferred by the species.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Low nesting and foraging potential. The project site is surrounded by residential and commercial development, which provides ornamental that are occasionally used by the species for nesting.
Agelaius tricolor (nesting colony)	tricolored blackbird	None/SSC/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to occur. No suitable freshwater, emergent wetland habitat for the species occurs in the action area.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/S[a]	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Low nesting and foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Not expected to occur. The project site and action area lacks suitable habitat (i.e., open grassland) for the species.
Aquila chrysaetos (nesting & wintering)	golden eagle	None/FP, WL/ None	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur. No suitable nesting or foraging habitat is present in the action area. The project site and surrounding area is too disturbed and developed to provide suitable nesting habitat for the species; however, the species may occasionally pass overhead during migration.
Artemisiospiza belli belli	Bell's sage sparrow	BCC/WL	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Low nesting and foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	None/SSC/S[a]	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. No suitable nesting or foraging habitat is present in the action area. The project site and surrounding area is too disturbed and developed to provide suitable nesting habitat for the species.
Baeolophus inornatus (nesting)	oak titmouse	BCC/None	Nests and forages in oak woodlands; also open pine forest, pinyon woodland, and riparian and chaparral with oak	Not expected to occur. No suitable nesting or foraging habitat is present in the action area. The project site and surrounding area is too disturbed and developed to provide suitable nesting habitat for the species.
Buteo swainsoni (nesting)	Swainson's hawk	None/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agriculturals areas such as wheat and alfalfa fields and pasture	Not expected to occur. No suitable nesting or foraging habitat is present in the action area. The project site and surrounding area is too disturbed and developed to provide suitable nesting habitat for the species; however, the species may occasionally pass overhead during migration.
Calypte costae (nesting)	Costa's hummingbird	BCC/None	Nests and forages in desert wash, edges of riparian and valley–foothill riparian, coastal scrub, desert scrub, desert succulent scrub, lower-elevation chaparral, and palm oasis	Low nesting and foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Chamaea fasciata	wrentit	BCC/None	Most common in chaparral, thickets of poison oak, and coastal sage scrub; also lives in streamside thickets and in shrubby areas in suburbs and city parks.	Present in the action area. The species was observed in the coastal scrub north of the staging area during the June 2017 survey; however, it is not expected to occur in the project site.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE/S[a]	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species.
Elanus leucurus (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FT/SE/S[b]	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species.
Eremophila alpestris actia	California horned lark	None/WL	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Low potential to occur. The limited grassland habitat present on site is compacted, isolated, overgrown, and too small to provide suitable habitat for the species.
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL, BCC/SDL, FP/S[a]	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Low potential to occur. Although potential roosting sites (i.e. buildings, bridges) are present within the vicinity of the project site, there is limited foraging habitat for the species.
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	BCC/SSC	Nests and forages in emergent wetlands including woody swamp, brackish marsh, and freshwater marsh	Not expected to occur. Outside the range of the species.
Gymnogyps californianus	California condor	FE/SE, FP/None	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees (*Sequoiadendron giganteus*); forages in relatively open habitats where large animal carcasses can be detected	Not expected to occur. May occasionally pass overhead; however, the project site is surrounded by residential and commercial development and lacks suitable open habitat for the species to forage or nest.
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Low nesting and foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Limosa fedoa (wintering)	marbled godwit	BCC/None	Prairies, pools, shores, tideflats. In migration and winter around tidal mudflats, marshes, ponds, mainly in coastal regions.	Not expected to occur. The project site and action area lacks suitable aquatic habitat for the species.
Melanerpes lewis (nesting)	Lewis's woodpecker	BCC/None	Winters in open oak woodland and savanna; nests in open ponderosa pine forest and logged or burned pine forest	Not expected to occur. The project site and action area lacks suitable woodland and forest habitat for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Melospiza melodia maxillaris	Suisun song sparrow	BCC/SSC	Nests and forages in emergent freshwater marsh, riparian forest, vegetated irrigation canals and levees, and newly planted valley oak (*Quercus lobata*) restoration sites	Not expected to occur. Outside the range of the species.
Pipilo maculatus clementae	San Clemente spotted towhee	BCC/SSC	Nests and forages in dense chaparral and woodlands	Not expected to occur. Outside the range of the species.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/S[b]	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development. Additionally, the species was not detected during protocol-level presence/absence surveys conducted for the species from April to June 2018. The closest CNDDB occurrence is approximately 6.5 miles southwest of the project site (CDFW 2019).
Riparia riparia (nesting)	bank swallow	None/ST/S[a]	Nests in riparian, lacustrian, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur. The project site and action area lacks suitable riparian habitat for the species.
Selasphorus rufus (nesting)	rufous hummingbird	BCC/None	Does not nest in California; migrates through a wide variety of habitats including coastal scrub, valley–foothill hardwood, and valley–foothill riparian habitats, and residential areas with feeders	Low foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Selasphorus sasin (nesting)	Allen's hummingbird	None/None	Nests in coastal scrub, valley–foothill hardwood, and valley–foothill riparian habitats; migrates in woodland and scrub habitats	Low nesting and foraging potential. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. The project site and action area lacks suitable habitat (i.e., riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer) for the species.
Spinus lawrencei (nesting)	Lawrence's goldfinch	BCC/None	Nests and forages in open oak, arid woodlands, and chaparral near water	Not expected to occur. The project site and action area lacks suitable habitat (i.e., oak woodlands) for the species.
Toxostoma redivivum	California thrasher	BCC/None	Chaparral, foothills, valley thickets, parks, gardens. Most common in chaparral, also occurs in streamside thickets and in suburban neighborhoods that have enough vegetation.	Not expected to occur. The project site and action area lacks suitable habitat (i.e., chaparral) for the species.
Vireo bellii pusillus (nesting)	least Bell's vireo	FT/SE/S[a]	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. No suitable riparian habitat present on site.
		Mammals		
Antrozous pallidus	pallid bat	None/SSC/S[a]	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Low potential to roost and forage. The species is highly intolerant of urban development (Miner and Stokes 2005)/
Corynorhinus townsendii	Townsend's big-eared bat	None/PST, SSC/S[a]	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur. The species is extremely sensitive to disturbance of roosting sites. Since the project site and surrounding area is heavily urbanized by residential and commercial development and infrastructure, the species is not expected to occur. The site lacks mesic habitats typically preferred by the species.
Euderma maculatum	spotted bat	None/SSC/None	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to roost, low potential to forage. The project site lacks rocky outcrops, crevices, and cliffs suitable for roosting.
Eumops perotis californicus	western mastiff bat	None/SSC/S[a]	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to roost, may occasionally forage. The project site lacks rocky outcrops, crevices, and cliffs suitable for roosting. The species may occasionally forage within isolated patches of ornamental vegetation and scrub habitat within the study area.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Lasionycteris noctivagans	silver-haired bat	None/None	Old-growth forest, maternity roosts in trees, large snags 50 feet aboveground; hibernates in hollow trees, rock crevices, buildings, mines, caves, and under sloughing bark; forages in or near coniferous or mixed deciduous forest, stream or river drainages	Not expected to roost, low potential to forage. The project site lacks rocky outcrops, crevices, and cliffs suitable for roosting.
Lasiurus blossevillii	western red bat	None/SSC/None	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Not expected to occur. The project site and surrounding area lacks forest and woodlands habitats or orchards preferred by the species.
Lasiurus cinereus	hoary bat	None/None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes	Not expected to occur. The project site and surrounding area lacks forest and woodlands habitats or orchards preferred by the species.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Not expected to occur. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Macrotus californicus	Californian leaf-nosed bat	None/SSC/S[b]	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, occasionally buildings	Not expected to occur. The project site is surrounded by residential and commercial development and lacks suitable habitat for the species. Minimal coastal scrub habitat occurs north of the potential staging area. The habitat is limited and relatively isolated, surrounded by disturbed habitat and heavily urbanized development (i.e. residential housing, freeway structures).
Microtus californicus stephensi	south coast marsh vole	None/SSC/S[b]	Tidal marshes	Not expected to occur. There are no tidal marshes within the study area suitable for the species.
Myotis ciliolabrum	western small-footed myotis	None/None	Arid woodlands and shrublands, but near water; roosts in caves, crevices, mines, abandoned buildings	Not expected to roost, low potential to forage. The project site lacks rocky outcrops, crevices, and cliffs suitable for roosting.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Myotis yumanensis	Yuma myotis	None/None	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Not expected to roost, low potential to forage. The project site lacks rocky outcrops, crevices, and cliffs suitable for roosting.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/S[a]	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Low potential to occur. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Low potential to occur. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC/S[b]	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development; however, the San Fernando Valley is not included within the current range for the species (Brylski et al. 1998).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. Minimal coastal scrub habitat occurs north of the proposed project's staging area; however, the habitat is limited and isolated by well-traversed roads and highways, and surrounded by disturbed habitat and heavily urbanized development.

Notes:

[1] Status abbreviations:

FE: Federally Endangered
FT: Federally Threatened
FDL: Federally Delisted
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered

ST: State Threatened
SDL: State Delisted

[2] Sensitive Species within the City of Los Angeles (City of Los Angeles 2006)
a: Potential to occur within Project site since known to occur in Zone 2
b: Occurrence is known in other zones or is unknown; however, the species has potential to occur within Project site

[3] Vicinity refers to records within the Oat Mountain, Canoga Park, Santa Susana, San Fernando, Calabasas, Van Nuys, Malibu Beach, Topanga, and Beverly Hills USGS 7.5-minute quadrangles.

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APPENDIX H

Coastal California Gnatcatcher Survey Report

DUDEK

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July 19, 2018 10649-27

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

Subject: 2018 Focused California Gnatcatcher Survey Report for the LADWP De Soto Tanks Project, City of Los Angeles, Los Angeles County, California

Dear Recovery Permit Coordinator:

This report documents the results of protocol-level presence/absence surveys for the coastal California gnatcatcher (*Polioptila californica californica*; CAGN). Focused surveys were conducted throughout all areas of suitable habitat (i.e., California buckwheat scrub) for the proposed Los Angeles Department of Water and Power (LADWP) De Soto Tanks project site located in the Chatsworth community of the city of Los Angeles, California (Figure 1). Suitable habitat for CAGN is approximately 10.9 acres of California buckwheat scrub within the study area (project site plus a 500-foot buffer). Dudek biologists Paul Lemons (TE051248-6) and Melissa Blundell (TE 97717A) conducted CAGN surveys from April through June 2018.

The CAGN is a federally listed threatened species and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet elevation and on slopes less than 40% (Atwood 1990), but CAGN have been observed at elevations greater than 2,000 feet. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat, and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

LOCATION AND EXISTING CONDITIONS

The approximately 17-acre De Soto Tanks project site (project site) is located in predominantly undeveloped area of the Chatsworth neighborhood within the city of Los Angeles, Los Angeles County, California (Figure 1). More specifically, the study area is physically located immediately south of State Route (SR) 118, and is bounded by De Soto Avenue to the west, and Rinaldi Street to the east and south (Figure 1).

The approximate centroid of the project site is at longitude -118.586185° West and latitude 34.272113° North within Section 8, Township 2 North, Range 16 West on the U.S. Geological Survey 7.5-minute Oat Mountain Quadrangle map.

Elevations on site are approximately 1,100 feet to 1,190 feet above mean sea level. Soils mapped within the survey area mainly include Chaualar-Urban land complex (2 to 9% slopes), Gaviota sandy loam (9 to 30% slopes), and Soper gravelly sandy loam (15 to 30% slopes). Smaller inclusions of the following soil types are also mapped in the survey area, Anacapa sandy loam (2 to 9% slopes), badland, and Balcom silty clay loam (9 to 30% slopes). The existing underground water tank is mapped as water (USDA NRCS 2006).

VEGETATION COMMUNITIES

Eleven vegetation communities and land covers were identified within the study area, which are shown in Figure 2 and tabulated in Table 1. Suitable CAGN habitat within the study area includes California buckwheat scrub, which is described in detail below.

Table 1
Vegetation Communities and Land Covers within the Study Area

Vegetation Community or Land Cover	Map Code	Project Site (acres)	Buffer (acres)	Total Study Area (acres)
Grasslands and Herbaceous Cover				
Annual brome grassland	ABG	3.46	0.53	3.99
Upland mustards (semi-natural stands)[c]	UM (SNS)	4.87	3.77	8.64
Subtotal Grasslands and Herbaceous Cover		*8.33*	*4.3*	*12.63*
Woodland Alliances and Stands				
Eucalyptus groves (semi-natural stands)	EG (SNS)	-	1.59	1.59
Parks and ornamental plantings	ORN	0.72	18.17	18.89
Subtotal Woodland Alliances and Stands [a]		*0.72*	*19.76*	*20.48*
Upland Shrubland Alliances and Stands				
California buckwheat scrub (*Eriogonum fasciculatum* shrubland alliance)	CBS	4.28	6.57	10.85
Subtotal Upland Shrubland Alliances and Stands [b]		*4.28*	*6.7*	*10.85*
Non-Natural Land Covers/Unvegetated Communities				
Disturbed habitat	DH	2.54	2.64	5.18
Concrete channel	CC	0.03	0.82	0.85
Urban/developed[a]	DEV	1.92	35.83	37.75
Subtotal Non-Natural Land Covers/Unvegetated Communities [a]		*4.49*	*39.29*	*43.78*
Total[a]		**17.82**	**70.05**	**87.74**

[a] Totals may not sum due to rounding.

[b] The term semi-natural stands vs. alliance is used in the *Manual of California Vegetation* to distinguish between natural vegetation communities and vegetation types dominated by non-native plants (Sawyer et al. 2009).

California buckwheat scrub (*Eriogonum fasciculatum* shrubland alliance)

California buckwheat scrub is a native plant community dominated by California buckwheat (*Eriogonum fasciculatum*) in the shrub canopy. Cover is typically continuous or intermittent with height less than 2 meters (7 feet). California buckwheat scrub occurs along the northern portion of the study area, immediately south of SR-118. This area also contains a sub-dominance of California sagebrush (*Artemisia californica*) and brittlebush (*Encelia farinosa*), with a mix of castorbean (*Ricinus communis*), cheeseweed mallow (*Malva parviflorum*), and shortpod mustard (*Hirschfeldia incana*) also present. This vegetation community is relatively moderate in size, comprising 4.28 acres of the project site and 6.7 acres of the surrounding 500-foot buffer (10.85 acres for the total study area). This habitat type is relatively dense, contiguous, and provides suitable habitat to support a pair of nesting or foraging CAGN.

METHODS

The presence/absence focused survey for CAGN was conducted for the project between April 25 and June 19, 2018. The survey was conducted in accordance with the schedule provided in Table 2. The specific areas surveyed and the survey route are depicted on Figure 2. Designated Critical Habitat for this species is located approximately 0.2 miles northwest of the project site north of SR-118.

Table 2
Survey Dates and Conditions

Date	Personnel	Temperature	Wind	Sky	Time
4/25/18	Paul Lemons	66°F–73°F	0–3 mph	10%–5% cc	0930–1140
5/2/18	Melissa Blundell	56°F–59°F	0–2 mph	100% cc	0725–0940
5/9/18	Paul Lemons	73°F–79°F	1–5 mph	0% cc	1025–1200
5/23/18	Paul Lemons	60°F–63°F	1–4 mph	100% cc	1005–1150
6/4/18	Paul Lemons	73°F–78°F	1–4 mph	0% cc	0930–1145
6/19/18	Melissa Blundell	62°F–64°F	0–1 mph	5% cc	0720–0848

* Survey Conditions: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour

The survey was conducted following the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS), *Coastal California Gnatcatcher* (*Polioptila californica californica*) *Presence/Absence Survey Protocol* (USFWS 1997). The survey included six visits at a minimum of 7-day intervals. In accordance with the protocol, no more than 80-acres of suitable habitat were surveyed by a single biologist during each site visit. Survey routes are shown in Figure 2, and allowed for complete audible and visual coverage of all suitable CAGN habitat on site.

A 200-scale topographic map (1 inch = 200 feet) overlain with vegetation polygons and the study area was utilized during the survey. Additionally, digital mobile maps were used during the surveys to assist in navigating each survey area. Weather conditions, time of day, and season were appropriate for the detection of gnatcatchers and are provided in Table 2. Appropriate binoculars (e.g., 10x50 magnification) were used to aid in detecting and identifying bird species. A recording of gnatcatcher vocalizations was played approximately every 200 feet to induce responses from potentially present gnatcatchers. Vocalization-playback would have been terminated immediately upon detection of any gnatcatchers to minimize the potential for harassment.

RESULTS

There were no CAGN observed or detected within the study area during any of the six focused surveys. A full list of bird species observed during the surveys and detected within proximity of the study area is provided in Attachment B. No CAGN or CAGN nests were detected. Additionally, no predatory species for CAGN were observed during the surveys.

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Sincerely,

Tommy Molioo

Tommy Molioo
Permit # TE-06873C-0.1

Paul Lemons
Permit # TE051248-6

MBlundell

Melissa Blundell
Permit # TE 97717A

Att: A, Figure 1, Project Location Map
Figure 2, CAGN Survey Route
B, Compendium of Wildlife Species Observed or Detected

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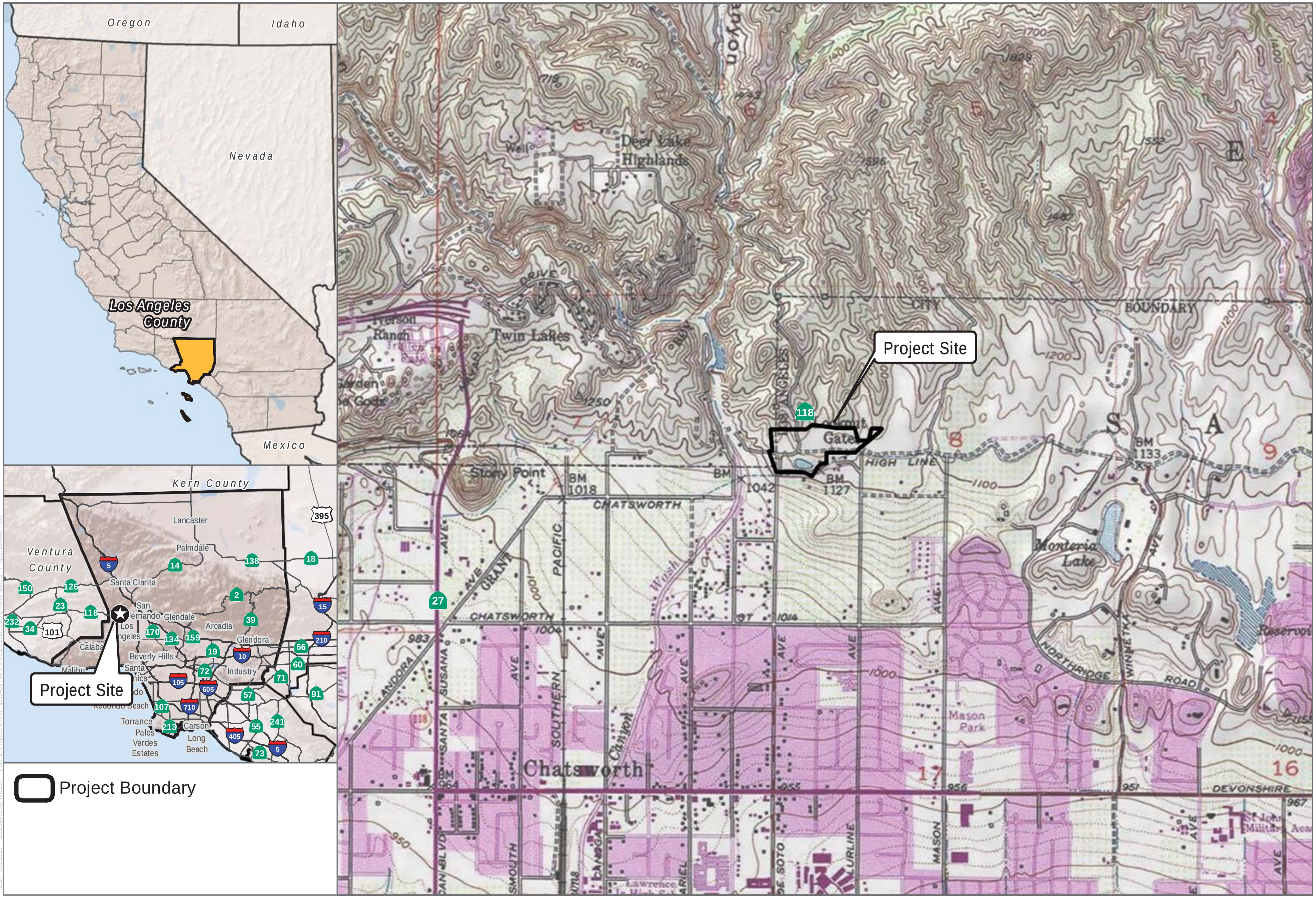
ATTACHMENT A

Figures



SOURCE: USGS 7.5-Minute Series Oat Mountain Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Coastal California Gnatcatcher Survey Report

SOURCE: Bing Maps 2018

LA DWP Los Angeles Department of Water & Power

FIGURE 2

California Gnatcatcher Survey Routes

ATTACHMENT B

Compendium of Wildlife Species Observed or Detected

ATTACHMENT B
Compendium of Wildlife Species Observed or Detected

BIRDS

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch
Spinus psaltria—lesser goldfinch
Spinus tristis—American goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin’s kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna’s hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Stelgidopteryx serripennis—northern rough-winged swallow

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Chondestes grammacus—lark sparrow
Melozone crissalis—California towhee

MAMMALS

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

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APPENDIX C

Cultural Resources Report

HISTORIC PROPERTIES IDENTIFICATION REPORT FOR THE DE SOTO TRUNK LINE PROJECT

City of Los Angeles, Los Angeles County, California

PREPARED FOR:

LOS ANGELES DEPARTMENT OF WATER AND POWER
Environmental Affairs Division
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MARCH 2020

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ACRONYMS AND ABBREVIATIONS

CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
City	City of Los Angeles
CRHR	California Register of Historical Resources
ERDIP	earthquake resistant ductile iron pipe
HCM	Historic-Cultural Monument
IS	Initial Study
LADWP	Los Angeles Department of Water and Power
MND	Mitigated Negative Declaration
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PRC	California Public Resources Code
Project	De Soto Trunk Line Project
ROW	Public Right of Way
SCCIC	Southern California Coastal Information Center
SHPO	State Historic Preservation Officer
TCP	Tribal Cultural Property
TCR	Tribal Cultural Resource
DWSRF	Drinking Water State Revolving Fund
SWRCB	State Water Resources Control Board
WSP	welded steel pipe

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EXECUTIVE SUMMARY

Dudek was retained by the Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for the proposed De Soto Trunk Line Project (Project). LADWP is proposing to replace approximately 13,500 feet (2.6 miles) of the existing riveted steel De Soto Trunk Line and approximately 2,700 feet (0.5 mile) of the existing riveted steel Roscoe Trunk Line. The replacement trunk lines would extend along Devonshire Street, Mason Avenue, and Roscoe Boulevard. The project would also involve approximately 900 feet (0.17 mile) of pipeline replacements at the intersection of De Soto Avenue and Victory Boulevard. Implementation of the proposed Project would increase safety capacity, and reliability of LADWP's water system in the western San Fernando Valley. LADWP, as a municipal utility, would implement and operate the proposed Project and will therefore act as the lead agency under the California Environmental Quality Act (CEQA).

LADWP will fund the proposed Project and may seek additional funding from available sources, which may include the State Water Resources Control Board's (SWRCB) Drinking Water State Revolving Fund (DWSRF). The SWRCB uses the CEQA review process and compliance with federal environmental laws and regulations to satisfy the environmental requirements for the DWSRF Program Operating Agreement between the United States Environmental Protection Agency and the SWRCB. As a result, and in addition to the CEQA review process, federal crosscutting requirements are often a part of the environmental review for projects that are funded through the DWSRF Program. Therefore, applications for funding must include proof of CEQA compliance and of compliance with federal requirements. Collectively, the process is termed "CEQA+" due to the addition of federal crosscutting studies to CEQA requirements. Therefore, this report identifies all cultural resources within the proposed Project's Area of Potential Effect (APE) and assesses whether the proposed Project would result in a significant impact to an historical resource under CEQA or an adverse effect to an historic property under Section 106 of the NHPA.

Dudek requested a search of the Sacred Lands File (SLF) from the Native American Heritage Commission (NAHC) of the proposed Project APE. The result of that search was negative for Native American resources. The NAHC also provided a list of 17 Native American groups and individuals who may have knowledge of the presence of Native American cultural resources in the proposed Project APE or Project vicinity. Dudek contacted each of these Native American groups regarding the Project. To date, Dudek received nine responses to the inquiry letters (see Section 5.3 Native American Correspondence). Should additional responses be received, Dudek will notify LADWP and integrate these responses into the study. Details of the Native American coordination efforts are provided in Appendix C. The proposed Project is subject to compliance with Assembly Bill (AB) 52. Native American consultation pursuant to AB 52 was completed by LADWP.

Dudek completed a California Historical Resources Information System (CHRIS) records search at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton of the proposed Project APE and a surrounding 0.5-mile search buffer (Confidential Appendix B). The search identified 77 previously conducted technical investigations within the proposed Project APE and search buffer, 16 of which overlap or are adjacent to the proposed Project APE. The search also identified eight previously recorded cultural resources within the search buffer, none of which exist within or adjacent to the proposed Project APE. The resources consist of five prehistoric archaeological sites including two habitation sites and three lithic scatters, two historic-age archaeological sites consisting of remnants of homesteads, and one built environment resource consisting of a church.

No newly or previously recorded cultural or historic built-environment resources were identified within the direct or indirect APE as a result of the CHRIS records search, Native American coordination, or survey. All construction activities will be limited to the public right-of-way (ROW) within existing paved roadways that extend through developed areas. Therefore, this study finds that the proposed Project would have a less-than-significant impact on historical resources under CEQA and would result in no historic properties affected under Section 106 of the NHPA.

1 INTRODUCTION

Dudek was retained by the Los Angeles Department of Water and Power (LADWP) to conduct a cultural resources study in support of the Initial Study/Mitigated Negative Declaration (IS/MND) for the proposed De Soto Trunk Line Project (Project). This report presents the results of a California Historical Resources Information System (CHRIS) records search, a reconnaissance-level survey of the proposed Project's Area of Potential Effect (APE), a Sacred Lands File (SLF) search conducted by the California Native American Heritage Commission (NAHC), and an assessment of potential impacts to historical resources under the California Environmental Quality Act (CEQA) and historic properties under Section 106 of the National Historic Preservation Act (NHPA).

The proposed Project includes replacement of approximately 13,500 feet (2.6 miles) of the existing riveted steel De Soto Trunk Line and approximately 2,700 feet (0.5 mile) of the existing riveted steel Roscoe Trunk Line. The replacement trunk lines would extend along Devonshire Street, Mason Avenue, and Roscoe Boulevard. Specifically, the replacement trunk lines would extend along Devonshire Street from De Soto Avenue to Mason Avenue; Mason Avenue from Devonshire Street to Roscoe Boulevard; and Roscoe Boulevard from De Soto Avenue to Mason Avenue. Additionally, the Project would include pipeline replacements along a section of De Soto Avenue from approximately 400 feet north of the Victory Boulevard intersection running south to Victory Boulevard and a section of Victory Boulevard running west to approximately 150 feet west of the De Soto Avenue intersection and running east to approximately 350 feet east of the De Soto Avenue intersection. The proposed trunk line replacements would increase the safety, capacity, and reliability of LADWP's water system in the western San Fernando Valley.

LADWP will fund the proposed Project, but may seek additional funding from the State Water Resources Control Board's (SWRCB) Drinking Water State Revolving Fund (DWSRF). Applications for DWSRF funding are subject to compliance with applicable federal environmental laws and regulations through a process termed "CEQA+", which was established in the DWSRF Program Operating Agreement between the United States Environmental Protection Agency and the SWRCB. As a result, and in addition to the CEQA review process, federal crosscutting requirements are often a part of the environmental review for projects that are funded through the DWSRF Program. Therefore, applications for funding must include proof of CEQA compliance and of compliance with federal requirements. Collectively, the process is termed "CEQA+" due to the addition of federal crosscutting studies to CEQA requirements. Project-related activities with the potential to affect historic properties are considered federal undertakings, subject to compliance with Section 106 of the NHPA of 1966, as amended, and its implementing regulations (36 CFR Part 800). The purpose of this report is to identify all cultural resources within the proposed Project APE and to determine whether the Project, as proposed, would result in a significant impact to an historical resource under CEQA or an adverse effect to an historic property under Section 106 of the NHPA.

Dudek Senior Architectural Historian Kara R. Dotter, MS, MSHP, who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History and Dudek Archaeologist Linda Kry, BA, are the technical leads and primary authors of this report. Dudek Archaeologist Adriane Dorrler, BA, completed the CHRIS records search, the NAHC SLF request, and coordinated Native American outreach. Dudek Archaeologist Makayla Murillo, BA, contributed to the report. Dudek Senior Architectural Historian and Archaeologist Samantha Murray, MA, RPA, who meets the Secretary of the Interior's Professional Qualifications Standards for both Archaeology and Architectural History, provided senior review. Resumes for all key personnel are provided in Appendix A.

2 PROJECT DESCRIPTION/UNDERTAKING

2.1 Project Description

The De Soto Trunk Line Project consists of installing approximately 2,700 feet of 54-inch-diameter welded steel pipe (WSP) and earthquake resistant ductile iron pipe (ERDIP) along Devonshire Street from De Soto Avenue to Mason Avenue; approximately 13,500 feet of 54-inch-diameter WSP along Mason Avenue from Devonshire Street to Roscoe Boulevard; approximately 2,700 feet of 48-inch-diameter WSP and ERDIP along Roscoe Boulevard from Mason Avenue to De Soto Avenue; and approximately 900 feet of 36-inch-diameter WSP at the intersection of De Soto Avenue and Victory Boulevard.

To determine the appropriate size for the replacement pipes, LADWP analyzed the operating criteria for the pipelines, including the service areas' current and future demand. The predicted ultimate maximum day peak hour demand was used for the analysis, and 54-inch-diameter, 48-inch-diameter, and 36-inch-diameter pipes were determined to be sufficient. The proposed 54-inch-diameter replacement De Soto Trunk Line would be consistent with the size of pipe installed in the 1980s along De Soto Avenue between Chatsworth Street and Lemarsh Street.

Construction

The existing De Soto, Roscoe, Canoga Topham, and Ventura trunk lines would remain in service during construction. Minimal interruptions in water service may occur during shutdowns needed for mainline connections and tie-ins to existing trunk lines. Affected customers would be notified in advance of any brief service interruptions. The replacement pipe would be installed within existing public right-of-way along the proposed alignment. Underground gas lines, water lines, fiber optics, and power lines may require relocation. Utility relocations would be accommodated within the proposed alignment (i.e., they would not result in additional impacts outside of the trunk line replacement boundaries). Construction staging would occur along the project alignment (i.e., Devonshire Street, Mason Avenue, Roscoe Boulevard, De Soto Avenue, and Victory Boulevard), with some encroachment occurring along sidewalks. Some driveways may be temporarily blocked during this process. The De Soto Reservoir property located to the north of the proposed project's northern terminus may also be used as a construction staging area for long-term storage. The De Soto Reservoir property is owned by LADWP and is currently used for water storage purposes. This area will be referred to as the "potential staging area." No permanent land use changes would occur at the potential staging area as part of this project. Therefore, this area is analyzed in the IS/MND relative to temporary construction impacts only.

An overview of the project alignment is shown in Figure 1 and Figure 2. At its northern terminus, the new pipeline would be tied into the existing 54-inch-diameter WSP at the intersection of De Soto Avenue and Devonshire Street. The proposed project would continue east approximately 2,700 feet to the intersection of Devonshire Street and Mason Avenue. The proposed project would then continue south for approximately 13,500 along Mason Avenue. Along Roscoe Boulevard, between De Soto Avenue and Mason Avenue, the

Roscoe Trunk Line would be replaced. The replacement line (which would be considered part of the De Soto Trunk Line) would tie into the existing De Soto Trunk Line at the De Soto Avenue/Roscoe Boulevard intersection and into the existing Roscoe Trunk Line near the Mason Avenue/Roscoe Boulevard intersection. The proposed project would also install 36-inch-diameter WSP at the intersection of De Soto Avenue and Victory Boulevard, including 400 feet along De Soto Avenue (northern terminus) for connection with the existing De Soto Trunk Line, 150 feet along Victory Boulevard (western terminus) for connection with the existing Canoga Topham Trunk Line, and 350 feet along Victory Boulevard (eastern terminus) for a connection to the existing Ventura Trunk Line and a 36-inch stub-out for a future trunk line.

During the tie-in operations, a small portion of the existing pipe would be exposed. That length would be removed to install a typical 45° tie-in piece for the new line connection. WSP and ERDIP have been selected as the proposed pipe materials.

The existing pipe segments that are no longer in service would be bulkheaded, filled with slurry, backfilled, and abandoned in place. Prior to this process, the decommissioned pipe segments would be flushed of water. This would involve construction activities at the tie-in locations (i.e., the intersection of De Soto Avenue/Devonshire Street, the intersection of De Soto Avenue/Roscoe Boulevard, the intersection of Roscoe Boulevard/Mason Avenue, and the intersection of De Soto Avenue/Victory Boulevard).

Construction Methods

Construction of the proposed project would occur along the existing public right-of-way of Devonshire Street, Mason Avenue, Roscoe Boulevard, De Soto Avenue, and Victory Boulevard using open-trench and pipe-jacking construction methods.

The general process for both open-trench and pipe-jacking construction methods consists of utility clearance/mark-out activities, site preparation, excavation, shoring, pipe installation, backfilling, and work area street restoration. Both construction methods would require on-site and off-site staging areas to temporarily store supplies and materials. (Off-site staging areas would generally consist of the De Soto Reservoir laydown area shown on Figures 1 and 2 and the sidewalks along Devonshire Street, Mason Avenue, Roscoe Boulevard, De Soto Avenue, and Victory Boulevard.) Approximately 300,000 square feet of roadway would be repaved along the entirety of the alignment.

Open-trench construction activities would last for approximately 55 months assuming two crews of approximately ten workers each. Pipe-jacking activities would last approximately 37 months assuming one crew of approximately six workers. Open-trench and pipe-jacking activities could occur simultaneously at different segments of the alignment. As such, the maximum number of workers along the alignment at one time would be 26 workers, when open-trench crews and pipe-jacking crews would be working simultaneously.

Open-Trench Excavation

Open-trench excavation is a construction method typically used to install pipelines and their appurtenances. In general, the process consists of site preparation, excavation and shoring, pipe installation and backfilling, and work site restoration. Construction would occur within the public right-of-way, within an approximately 1,000-foot-long work area. Two-way travel along the affected roadways would be maintained throughout construction. Construction would primarily occur on the east or west side of the street. The maximum length of open trench at any one time would be approximately 100 feet. As described above, open-trench activities would occur for a total of 55 months. The trenches would be barricaded along the perimeter with chain-linked fences and concrete traffic barriers to prevent vehicles and pedestrians from entering the work area. During the open-trench construction processes, approximately 120 cubic yards of excavated material are expected to be removed and hauled off per day. The following is a description of the phases of construction for open-trench excavation.

Site Preparation. Traffic control plans would be prepared in coordination with the City of Los Angeles Department of Transportation (LADOT) to delineate traffic lanes around work areas. The existing pavement along the project alignment would be cut with a concrete/asphalt saw cutter and then removed using equipment such as jackhammers, pavement breakers, excavators, and/or loaders. The pavement would be removed from the project site and recycled, reused as a backfill material, reused as pavement base material, or transported to an appropriate facility for recycling or disposal.

Excavation and Shoring. A trench would be excavated along the alignment using backhoes, excavators, or other types of excavation equipment. Portions of the trench adjacent to utilities may be manually excavated. Excavated soil would be reused as backfill material or hauled off site.

A typical trench would be 11.5 feet wide and 10 feet deep. Where perpendicular substructures must be avoided, trenches may be excavated deeper or shallower, as necessary. As noted above, the work area required for trenching would be approximately 1,000 feet long per work area; however, only 100 feet of trench would be left open at any one time. As the trench/pit is excavated, the walls are typically supported, or shored, with hydraulic jacks or trench boxes. (Trenches greater than 5 feet in depth require shoring to prevent caving or collapse, per the requirements of the California Department of Industrial Relations, Division of Occupational Safety and Health (OSHA)). Steel or timber sheeting between H-beams (e.g., beam and plate) may also be used for shoring. Other similar shoring methods may be utilized. Utilities not relocated prior to trenching would be supported as excavation and shoring occurs.

If construction occurs in areas with high groundwater, the groundwater would be removed during the excavation of the trenches, usually by pumping it from the ground through dewatering wells that have been drilled along the alignment. The extracted groundwater would be treated for any contaminants, if present, before being discharged to the storm drain system or to the sewer system under Regional Water Quality Control Board permit requirements.

Pipe Installation and Backfilling. Once the trench has been excavated and shored, pipe laying would commence. Bedding material (crushed rock, sand, or slurry) would be placed and compacted at the bottom of the trench. Pipe segments would then be lowered into the trench and placed on the bedding. The segments would be welded or mechanically connected to one another at the joints. Approximately 18 linear feet of pipe would be installed per day by each construction crew. Assuming two crews would be working at the same time, an average of 36 linear feet of pipe would be installed per day. Prior to backfilling, appurtenant structures would be installed as necessitated by design. After laying the pipe, the trench would be backfilled with crushed aggregate base, crushed miscellaneous base, slurry, or previously excavated materials from the work area.

Work Site Restoration. Any portion of the roadway damaged as a result of construction activities would be repaved and restored in accordance with all applicable City of Los Angeles Department of Public Works standards. Once the pavement has been restored, traffic delineation (restriping) would also be restored.

Construction Equipment. Examples of equipment typically used for open-trench construction are listed below:

- Excavator
- Hauling trucks
- Cooling and cutting water truck
- Crane
- Backhoe
- Front end loader
- Welding equipment
- Welder truck
- Paving equipment
- Dump truck
- Water truck
- Street sweeper
- Service utility truck
- Saw cutting equipment
- Plate compactor
- Pavement roller/compactor
- Forklift
- Trailer
- Blower
- Power generators
- Small tools
- Shoring equipment
- Air compressor

Pipe-Jacking Methods

Pipe jacking, which is a form of tunneling, would be used to reduce traffic disruptions at busy intersections and to extend underneath features along the alignment that would not be suitable for open-trench construction. Pipe jacking would be used at the following intersections and crossings to minimize traffic disruptions and to avoid areas where open trenching would not be feasible.

- Devonshire Street and Mason Avenue
- Lassen Street and Mason Avenue
- Union Pacific Railroad tracks and Mason Avenue
- Nordhoff Street and Mason Avenue
- Browns Creek Channel crossing at Roscoe Boulevard

- De Soto Avenue and Victory Boulevard (2 jacking locations)

The pipe-jacking process would take less than 6 months at each of the pipe-jacking areas listed above, for a total of approximately 37 months of pipe jacking.

The installation of pipelines using pipe jacking would avoid the continuous surface disruption that would be required for open-trench construction. However, some surface disruption would still occur, since jacking and receiving pits would be used and would be excavated along the project alignment. Pipe jacking involves a horizontal auger boring machine that is advanced in a tunnel bore to remove material ahead of or inside the jacking pipe. Powerful hydraulic jacks are used to push a steel jacking pipe from a launch (bore) pit to a receiving pit. As the tunneling machine is driven forward, a jacking pipe is added into the pipe string. The following is a description of the phases of construction for pipe jacking. During the pipe-jacking process, approximately 40 cubic yards of excavated materials are expected to be removed and hauled off per day.

Site Preparation. Traffic control plans would be prepared in coordination with LADOT to delineate traffic lanes around work areas and to address any turn-lane pockets affected by the proposed project at major intersections. In preparation of excavating the jacking and receiving pits, the pavement would first be cut using a concrete/asphalt saw cutter or pavement breaker. As with open-trench excavation, the pavement would be removed from the project site and recycled, reused as a backfill material, reused as pavement base material, or transported to an appropriate facility for recycling or disposal.

Excavation and Shoring. A jacking pit and a receiving pit would generally be used for each jacking location, one at each end of the pipe segment. The distance between the pits would typically range from 250 feet to 1,000 feet, but may be longer or shorter depending on soil or other site conditions.

Jacking pits would be approximately 20 feet wide, 42 feet long, and 35 feet deep. Receiving pits would be approximately 15 feet wide, 40 feet long, and 35 feet deep. The pits would be excavated with backhoes and other excavation equipment. The excavated soil would be hauled to an off-site disposal facility or reused as backfill material. As excavation occurs, the pits would be shored using a beam-and-plate shoring system.

Pipe Installation. After construction and shoring of the pits, a horizontal hydraulic jack would be placed at the bottom of the jacking pit. A steel casing would be lowered into the pit with a crane and placed on the jack. (For pipe jacking along Mason Avenue, the steel casing would measure 72 inches on its inner diameter; for pipe jacking along Roscoe Boulevard, the steel casing would measure 66 inches on its inner diameter; for pipe jacking at the intersection of Victory Boulevard and De Soto Avenue, the steel casing would measure 54 inches on its inner diameter.) A simple cutting shield would be placed in front of the pipe segment to cut through the soil. As the jack pushes the steel casing and cutting shield into the soil, the soil would be removed from within the leading casing with an auger or boring machine, either by hand or on a conveyor. Pipe jacking uses water that is pumped down the drill stem to run the drill head, lubricate the drill pipe, maintain the borehole, and remove bore cuttings. Depending on soil conditions, bentonite would be added to the water to help lubricate the pilot pipe, maintain the stability of the borehole, and keep the hole drilled open. The water and clay would be mixed on site in a mixer attached to or as part of the bore machine. Earth cuttings from the borehole and the water/clay mixture would return to the bore entry pit, where it would be pumped into a receiving tank. Once a casing segment is pushed into the soil, a new segment would be lowered, set in place, and welded to the casing that has been pushed. Installation of the steel casing would be expected to progress at approximately 40 feet per day. Once the casing has been installed, the carrier pipe would be lowered and placed on the jacks, which would push the pipe into the steel casing using casing spacers.

Work Site Restoration. After completion of the pipe installation along the jacking locations, the shoring system would be disassembled as the pits are backfilled, the soil would be compacted, and pavement would be restored. Once the pavement restoration is complete, traffic delineation (restriping) would be restored.

Construction Equipment. The same equipment fleet required for open-trench construction would be required to construct the jacking pits and receiving pits, since those construction activities are similar (see the list of equipment above under Open-Trench Excavation). The following additional equipment would generally be required for the pipe-jacking process:

- Excavator
- Dump trunk
- Tunnel boring machine (TBM)
- Power generators and electrical systems
- Control systems
- Power cables
- Cooling and cutting water truck
- Lubrication pump
- Pipe-jacking frame
- High pressure water pump
- Hauling trucks
- Utility truck
- Crane

Hydrostatic Testing and Pipeline Disinfection

Hydrostatic testing would be conducted periodically throughout construction. Approximately 3,000 linear feet of new pipeline would be tested at a time. Once hydrostatic testing is completed, the new pipelines would be disinfected. Hydrostatic test water and disinfectant water would be discharged to the sewer system or the storm drain system in accordance with State Water Resources Control Board permit requirements. The total amount of water required for these processes over the course of construction would be approximately 5 million gallons (2.5 million gallons for hydrostatic testing and 2.5 million gallons for disinfection).

2.2 Project Location

The existing trunk lines, which vary in size from 24 inches to 54 inches in diameter, are located in the western portion of the San Fernando Valley within the City of Los Angeles (City). The De Soto Trunk Line runs north to south along De Soto Avenue from the De Soto Reservoir (northern terminus) to Victory Boulevard (southern terminus). The Roscoe Trunk Line runs east to west from Louise Avenue (eastern terminus) to

Fallbrook Avenue (western terminus); however, the portion of the trunk line west of De Soto Avenue is currently out of service. The Canoga Topham Trunk Line runs east to west on Victory Boulevard from De Soto Avenue (western terminus) to Canoga Avenue, and then continues north to south on Canoga Avenue from Victory Boulevard to Ventura Boulevard. The Ventura Trunk Line runs west to east on Victory Boulevard from De Soto Avenue (eastern terminus) to Tampa Avenue, and then continues on Tampa Avenue from Victory Boulevard to Ventura Boulevard.

The proposed limits of the existing De Soto Trunk Line to be abandoned extend along De Soto Avenue from Devonshire Street to Roscoe Boulevard. The proposed limits of the existing Roscoe Trunk Line to be abandoned extend along Roscoe Boulevard from De Soto Avenue to Mason Avenue. Portions of several trunk lines would also be abandoned at the De Soto Avenue/Victory Boulevard intersection.

The proposed trunk line replacement would begin at the intersection of De Soto Avenue and Devonshire Street, extending 2,700 feet (0.5 mile) along Devonshire Street before turning south onto Mason Avenue. The alignment then extends approximately 13,500 feet (2.6 miles) south along Mason Avenue, until it reaches Roscoe Boulevard. At the Mason Avenue/Roscoe Boulevard intersection, the alignment turns to the west, extending approximately 2,700 feet (0.5 mile) along Roscoe Boulevard before terminating at De Soto Avenue (see Figures 1 and 2). The project also includes some pipeline work at the intersection of De Soto Avenue and Victory Boulevard, which is located approximately 2 miles south of the De Soto Avenue/Roscoe Boulevard intersection. The Project would also involve pipeline abandonment along De Soto Avenue (from Devonshire Street to Roscoe Boulevard), along Roscoe Boulevard (from Mason Avenue to De Soto Avenue), and at the De Soto Avenue/Victory Boulevard intersection. Pipeline abandonment would involve filling the old pipe with cement slurry. This would require construction activity at the tie-in locations (i.e., the intersections of De Soto Avenue/Devonshire Street, De Soto Avenue/Roscoe Boulevard, Mason Avenue/Roscoe Boulevard, and De Soto Avenue/Victory Boulevard).

There is a potential construction staging area located at the De Soto Reservoir property, which is owned by LADWP and is currently used for water storage purposes. This area will be referred to as the "potential staging area" and is located approximately 1 mile north of the project alignment's northern extent.

2.3 Area of Potential Effect

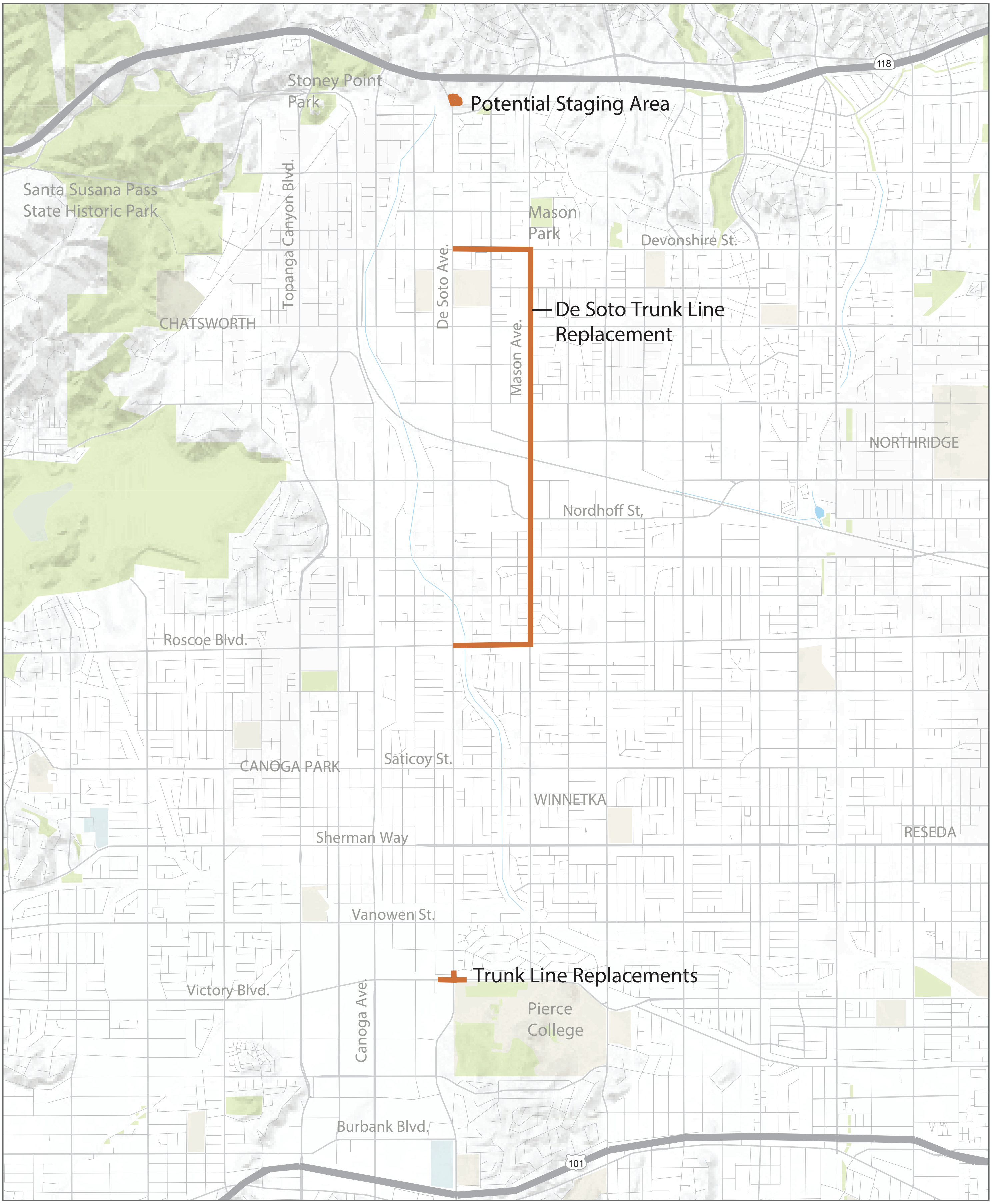
The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16(d)). The proposed Project APE (Figure 3) includes consideration of the direct and indirect effects of the project/undertaking, and includes all areas where ground disturbance is expected to occur, representing the Project footprint:

- All areas of the proposed trunk line along Devonshire Street from De Soto Avenue to Mason Avenue; along Mason Avenue from Devonshire Street to Roscoe Boulevard; along Roscoe

Boulevard from De Soto Avenue to Mason Avenue; a section of De Soto Avenue from approximately 400 feet north of the Victory Boulevard intersection running south to Victory Boulevard; and a section of Victory Boulevard running west to approximately 150 feet west of the De Soto Avenue intersection and running east to approximately 350 feet east of the De Soto Avenue intersection.

- Construction staging areas along streets where the construction is taking place.
- Areas where equipment and materials may be staged, including parking lanes of roadways and along sidewalks where encroachment may occur.

The vertical extent of the APE for the proposed Project is defined as the depth of soils disturbed during Project construction that have the potential to contain intact cultural deposits. The amount of disturbed soils varies according to the topography and construction needs, but is anticipated to be 10 feet below grade where trenching is anticipated and approximately 35 feet below grade where pipe jacking may be conducted. Where perpendicular substructures must be avoided, trenches may be excavated deeper or shallower, as necessary.



SOURCE: OpenStreetMap

Los Angeles Department of Water & Power

0 5 1 Mile

FIGURE 1

Project Location

De Soto Trunk Line Project

Date: 8/21/2019 - Last saved by: cstarbird - Path: Z:\Projects\LADWP\j1064904\MAPDOC\Cultural\Fig_Project_Location_Cultural.ai

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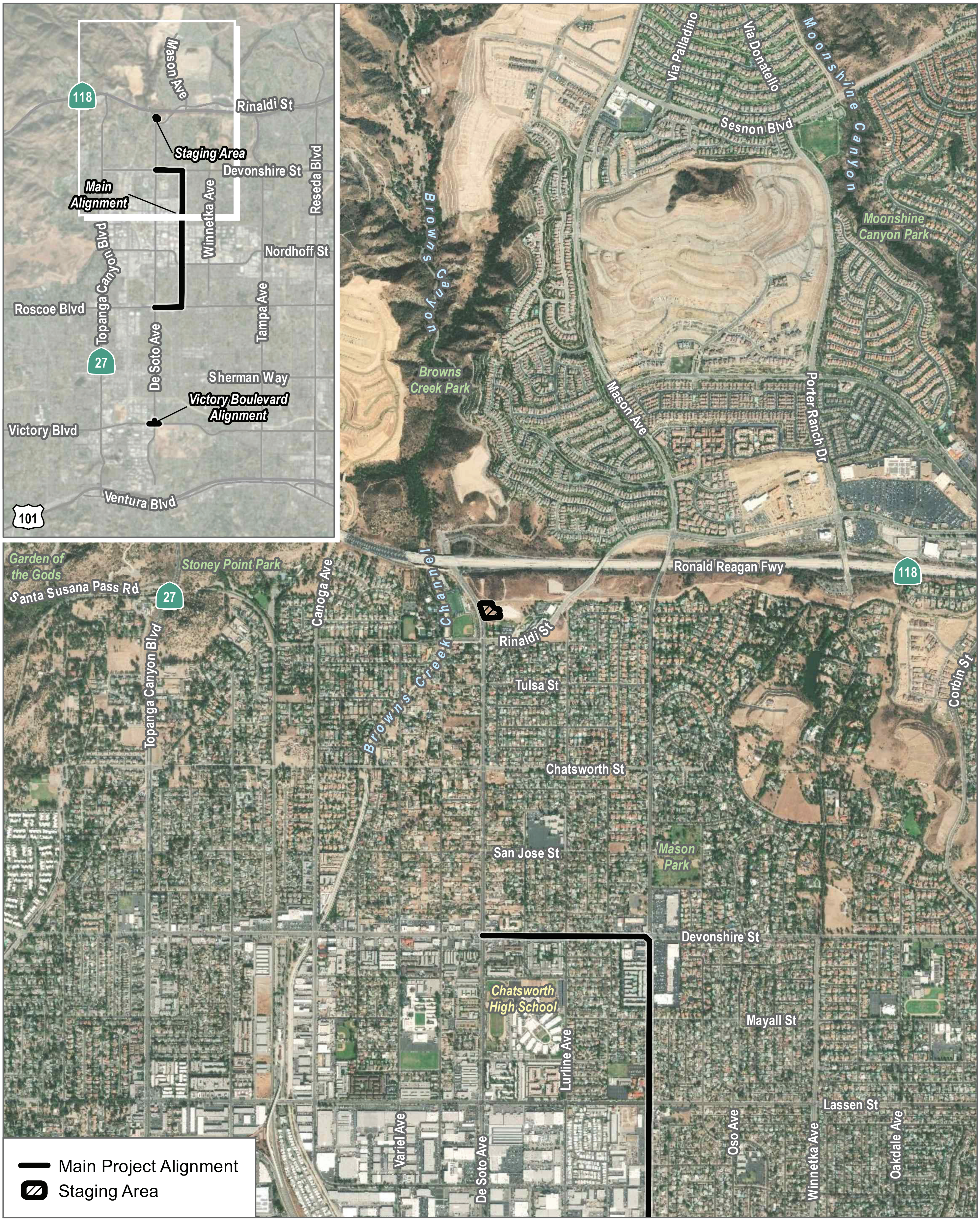


SOURCE: Esri and Digital Globe, Open Street Map

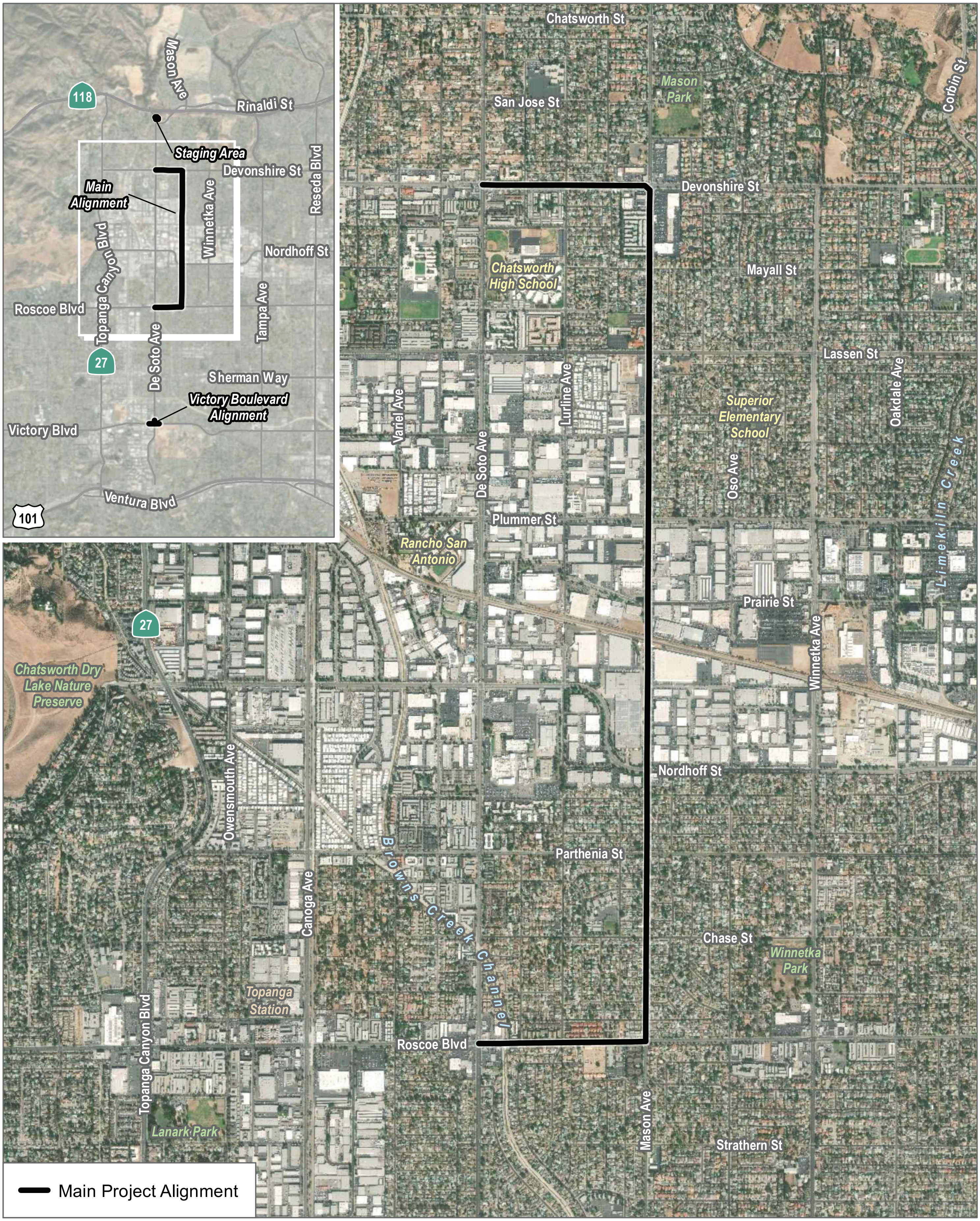
Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 2A

Project Vicinity - Staging Area

De Soto Trunk Line Project



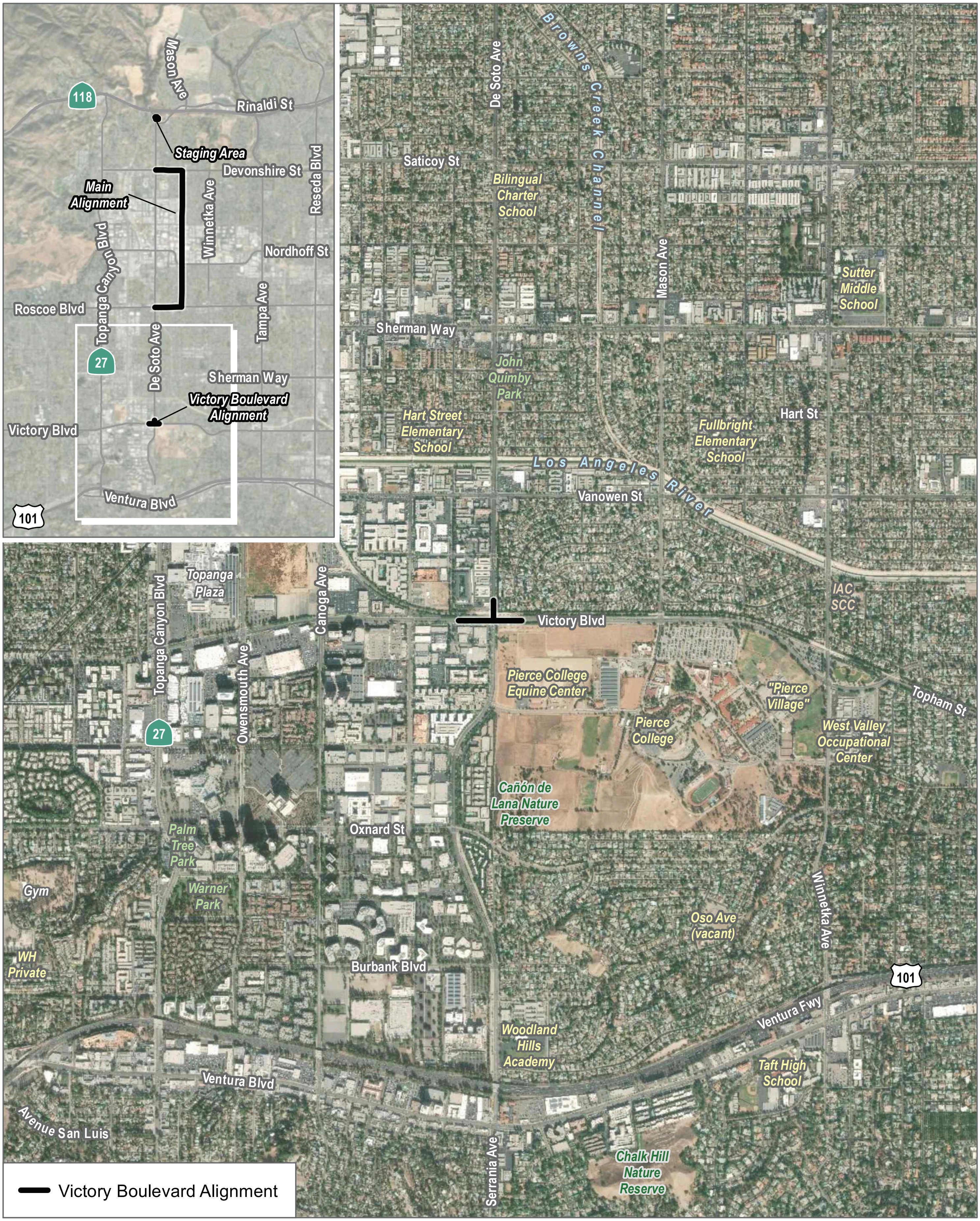
SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

FIGURE 2B

Project Vicinity - Main Alignment

De Soto Trunk Line Project



SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 2C

Project Vicinity - Victory Boulevard Alignment

De Soto Trunk Line Project

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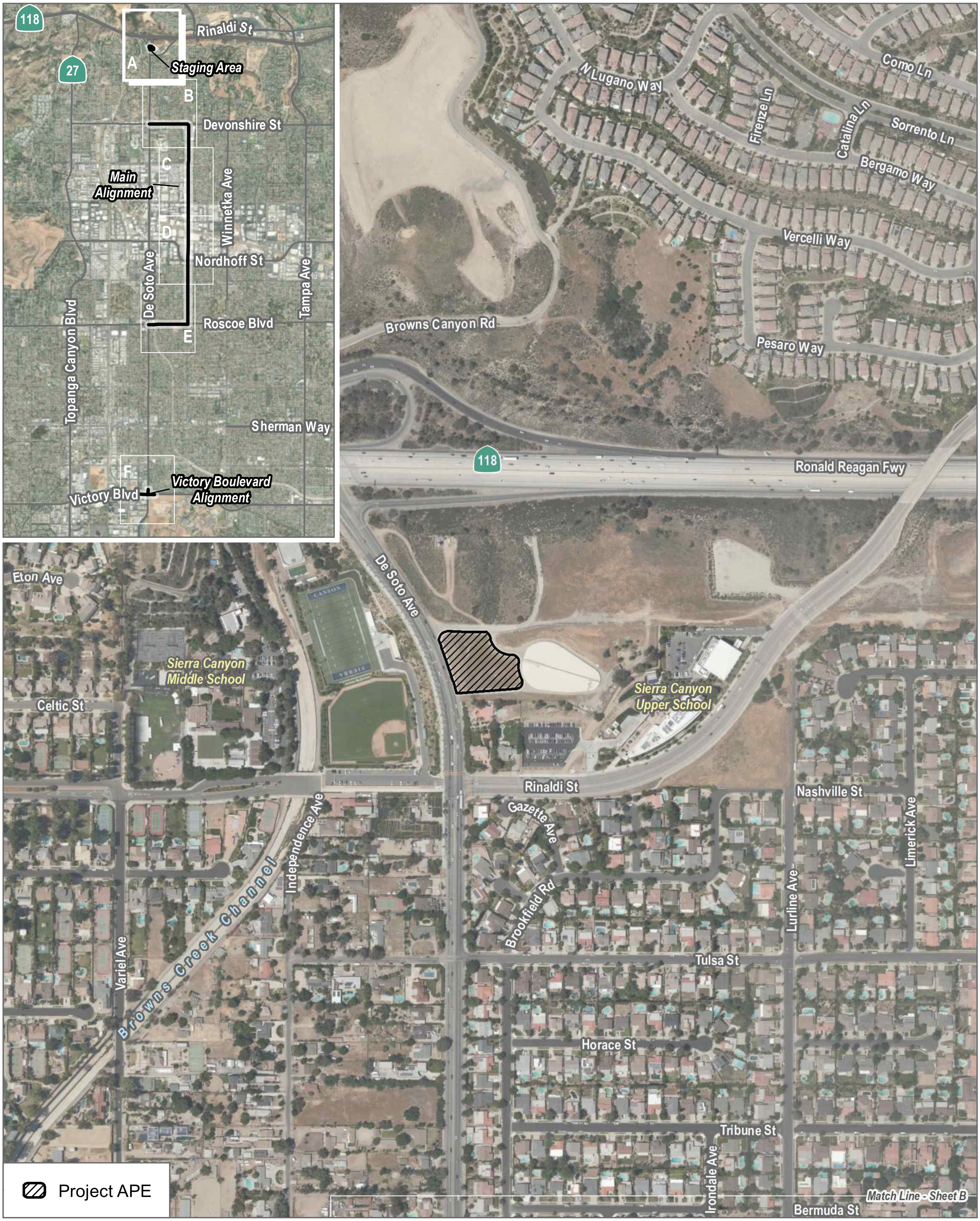


SOURCE: Esri and Digital Globe, Open Street Map

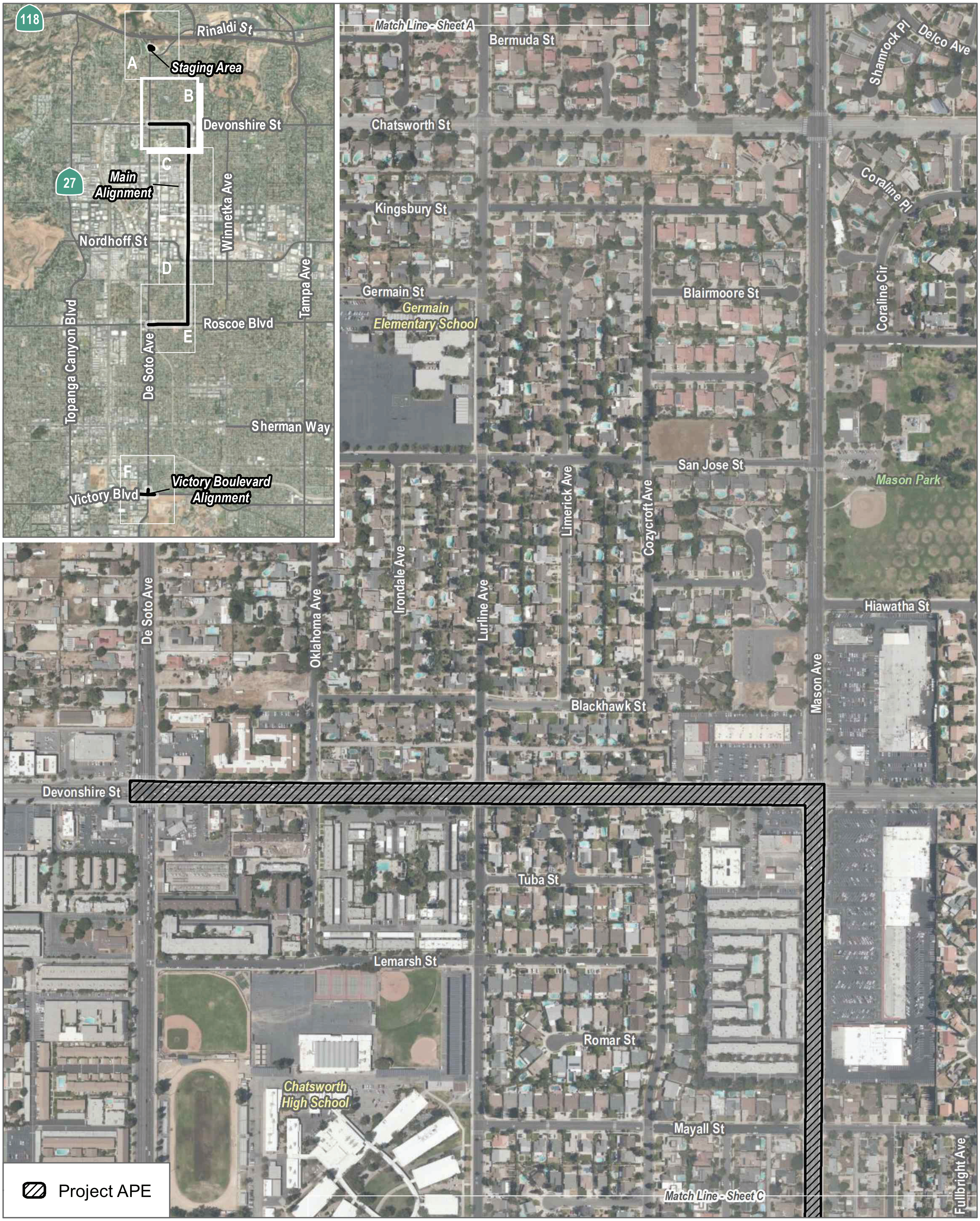
LA DWP Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3, SHEET A

Project APE

De Soto Trunk Line Project



SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

N

0 250 500 Feet

FIGURE 3, SHEET B

Project APE

De Soto Trunk Line Project

SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

FIGURE 3, SHEET C

Project APE

De Soto Trunk Line Project

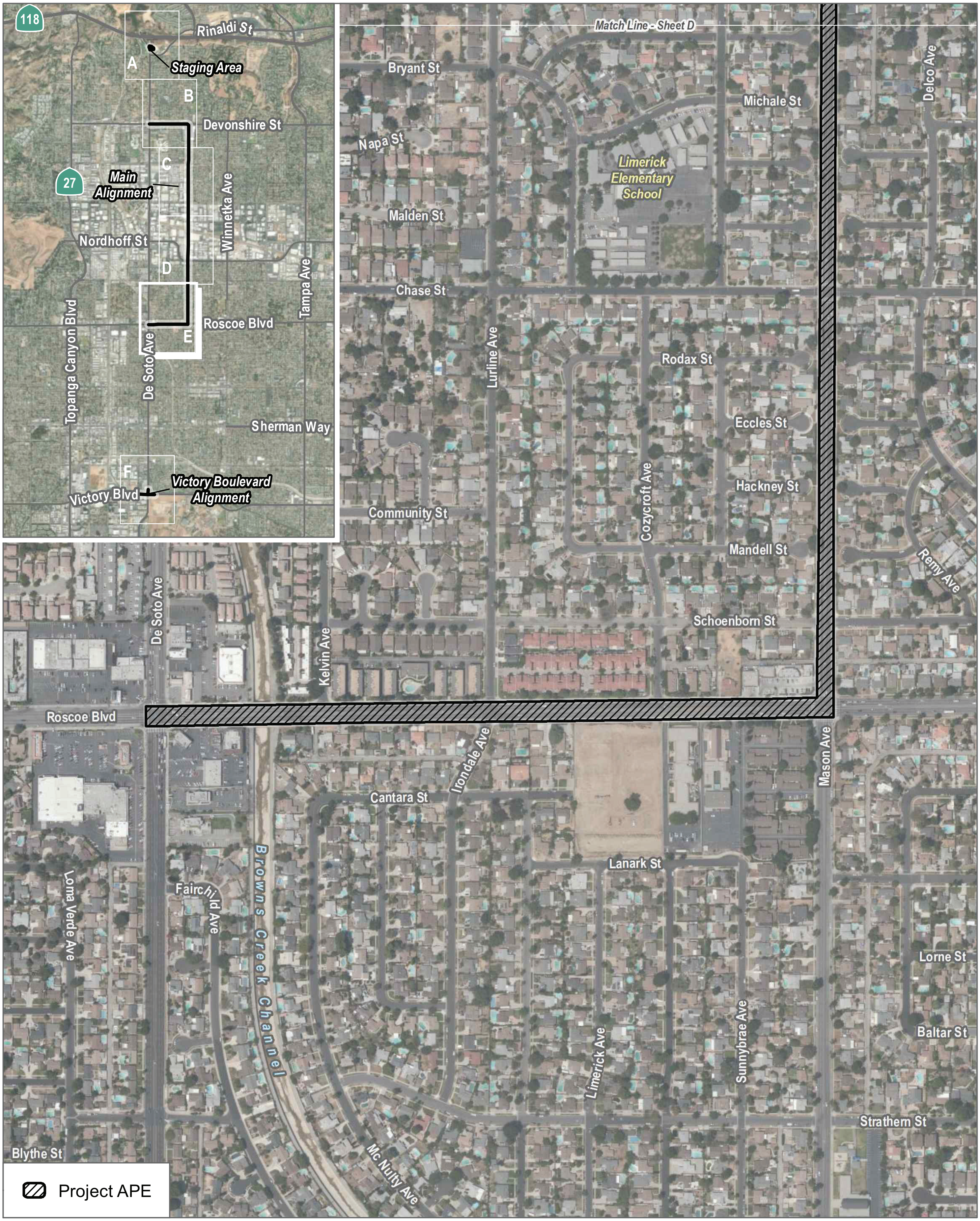
SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

FIGURE 3, SHEET D

Project APE

De Soto Trunk Line Project



SOURCE: Esri and Digital Globe, Open Street Map

LA DWP Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3, SHEET E

Project APE

De Soto Trunk Line Project

SOURCE: Esri and Digital Globe, Open Street Map

FIGURE 3, SHEET F

Project APE

De Soto Trunk Line Project

3 REGULATORY SETTING

The regulatory framework for the project is CEQA+. As such, project-related activities with the potential to affect historic properties are considered federal undertakings, subject to compliance with Section 106 of the NHPA of 1966, as amended, and its implementing regulations (36 CFR Part 800). Under Section 106, historic and archaeological districts, sites, buildings, structures, and objects are assigned significance based on their exceptional value or quality in illustrating or interpreting history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance; these are described below.

3.1 Federal

The National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that

> [t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the ACHP and the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

The 1992 amendments to the NHPA enhance the recognition of tribal governments' roles in the national historic preservation program, including adding a member of an Indian tribe or Native Hawaiian organization to the ACHP.

The NHPA amendments:

- Clarify that properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion in the National Register
- Reinforce the provisions of the Council's regulations that require the federal agency to consult on properties of religious and cultural importance.

The 1992 amendments also specify that the ACHP can enter into agreement with tribes that permit undertakings on tribal land and that are reviewed under tribal regulations governing Section 106. Regulations implementing the NHPA state that a federal agency must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.

3.2 State

California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

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

(2) Is associated with the lives of persons important in our past.

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

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

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource younger than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see California Code of Regulations, Title 14, Section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of

preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for the purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following (CEQA Guidelines Section 15064.5(b)(2)):

1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any historical resources, then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC Sections 21074(c) and 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A TCR is either:

- On the CRHR or a local historic register; Eligible for the CRHR or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or EIR.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a TCR has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to TCRs, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3(a)).

Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

The Native American Historic Resources Protection Act (Public Resources Code section 5097, et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Health and Safety Code Section 7050.5b). PRC Section 5097.98 outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours (Health and Safety Code Section 7050.5c). The NAHC would notify the most likely descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

3.3 Local

Los Angeles Historic-Cultural Monuments

Local landmarks in the City of Los Angeles are known as Historic-Cultural Monuments (HCMs) and are under the aegis of the Planning Department, Office of Historic Resources. They are defined in the Cultural Heritage Ordinance as follows (Los Angeles Municipal Code Section 22.171.7, added by Ordinance No. 178,402, effective April 2, 2007):

> Historic-Cultural Monument (Monument) is any site (including significant trees or other plant life located on the site), building or structure of particular historic or cultural significance to the City of Los Angeles, including historic structures or sites in which the broad cultural, economic or social history of the nation, State or community is reflected or exemplified; or which is identified with historic personages or with important events in the main currents of national, State or local history; or which embodies the distinguishing characteristics of an architectural type specimen, inherently valuable for a study of a period, style or method of construction; or a notable work of a master builder, designer, or architect whose individual genius influenced his or her age.

For the purposes of SurveyLA, this definition has been broken down into the following four HCM designation criteria that closely parallel the existing NRHP and CRHR criteria:

1. Is identified with important events in the main currents of national, State or local history, or exemplifies significant contributions to the broad cultural, political, economic or social history of the nation, state, city, or community; or
2. Is associated with the lives of Historic Personages important to national, state, city, or local history; or
3. Embodies the distinctive characteristics of a style, type, period, or method of construction; or represents a notable work of a master designer, builder or architect whose genius influenced his or her age; or possesses high artistic values; or
4. Has yielded, or has the potential to yield, information important to the pre-history or history of the nation, state, city or community.

Historic Preservation Overlay Zones

As described by the City of Los Angeles Office of Historic Resources, the Historic Preservation Overlay Zone (HPOZ) Ordinance was adopted in 1979 and amended in 2004 to identify and protect neighborhoods with distinct architectural and cultural resources. HPOZs, commonly known as historic districts, provide for review of proposed exterior alterations and additions to historic properties within designated districts.

Regarding HPOZ eligibility, City of Los Angeles Ordinance Number 175891 states (Los Angeles Municipal Code, Section 12.20.3):

> Features designated as contributing shall meet one or more of the following criteria:
>
> 1. adds to the Historic architectural qualities or Historic associations for which a property is significant because it was present during the period of significance, and possesses Historic integrity reflecting its character at that time; or
> 2. owing to its unique location or singular physical characteristics, represents an established feature of the neighborhood, community or city; or
> 3. retaining the building, structure, Landscaping, or Natural Feature, would contribute to the preservation and protection of an Historic place or area of Historic interest in the City.

Regarding effects on federal and locally significant properties, Los Angeles Municipal Code states the following (Section 91.106.4.5, Permits for Historical and Cultural Buildings):

> The department shall not issue a permit to demolish, alter or remove a building or structure of historical, archaeological or architectural consequence if such building or structure has been officially designated, or has been determined by state or federal action to be eligible for designation, on the National Register of Historic Places, or has been included on the City of Los Angeles list of historic cultural monuments, without the department having first determined whether the demolition, alteration or removal may result in the loss of or serious damage to a significant historical or cultural asset. If the department determines that such loss or damage may occur, the applicant shall file an application and pay all fees for the California Environmental Quality Act Initial Study and Check List, as specified in Section 19.05 of the Los Angeles Municipal Code. If the Initial Study and Check List identifies the historical or cultural asset as significant, the permit shall not be issued without the department first finding that specific economic, social or other considerations make infeasible the preservation of the building or structure.

4 SETTING

4.1 Environmental Setting

The proposed Project APE is located primarily in the Chatsworth-Porter Ranch Community Plan Area within the City of Los Angeles, which is a highly urbanized area, characterized by dense residential and commercial developments, and is situated within the western portion of the San Fernando Valley at the base of the Santa Susana Mountains. The proposed Project APE is relatively flat, with elevations ranging between approximately 830 and 950 feet (252 and 289 meters) above mean sea level (amsl) for the majority of the proposed Project APE and between 1,005 and 1,130 feet (306 and 344 meters) amsl within the potential staging area. The area surrounding the proposed Project APE is completely urbanized and is dominated by ornamental landscaping. Alluvial fan deposits from the Santa Susana Mountains to the north were transported to their current location in part by Browns Creek Channel, which traverses the southern portion of the proposed Project APE. The proposed Project APE is underlain by seven soils types and are as follows: Anacapa sandy loam; Anacapa-Urban land complex; Chualar-Urban land complex; Conejo-Urban land complex; Cropley-Urban land complex; Gaviota sandy loam; and San Emigdio-Urban land complex (USDA 2019).

4.2 Cultural Setting

Prehistoric Overview

Evidence for continuous human occupation in Southern California spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad period have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. To be more inclusive, this research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769).

Paleoindian Period (pre-5500 BC))

Evidence for Paleoindian occupation in the region is tenuous. Our knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego, through the Mojave Desert, and beyond. One of the earliest dated archaeological assemblages in the region is located in coastal Southern California (though contemporaneous sites are present in the Channel Islands) derives from SDI-4669/W-12 in La Jolla. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 2006). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of ground stone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on Naval Air Weapons Station China Lake near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679)—a multi-component fluted point site, and MNO-680—a single component Great Basined Stemmed point site (see Basgall et al. 2002). At MNO-679 and -680, ground stone tools were rare while finely made projectile points were common.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the region that possibly dates between 10,365 and 8,200 BC (Warren et al. 2004). Termed San Dieguito (see also Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (see also Warren 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos's interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

San Dieguito sites are rare in the inland valleys, with one possible candidate, RIV-2798/H, located on the shore of Lake Elsinore. Excavations at Locus B at RIV-2798/H produced a toolkit consisting predominately of flaked stone tools, including crescents, points, and bifaces, and lesser amounts of groundstone tools, among other items (Grenda 1997). A calibrated and reservoir-corrected radiocarbon date from a shell produced a date of 6630 BC. Grenda (1997) suggested this site represents seasonal exploitation of lacustrine resources and small game and resembles coastal San Dieguito assemblages and spatial patterning.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in Southern California deserts, where hunting-related tools were replaced by processing tools during the early Holocene (see Basgall and Hall 1990).

Archaic Period (8000 BC – AD 500)

The more than 2,500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in Southern California. If San Dieguito is the only recognized Paleoindian component in the coastal Southern California, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (see Hale 2001, 2009).

The Archaic pattern, which has also been termed the Millingstone Horizon (among others), is relatively easy to define with assemblages that consist primarily of processing tools, such as millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (see Basgall and Hall 1990; Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurred until the bow and arrow was adopted around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remained low. After the bow was adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decreased in proportion relative to expedient, unshaped ground stone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complemented only by the addition of the bow and ceramics.

Late Prehistoric Period (AD 500-1769)

The period of time following the Archaic and before Ethnohistoric times (AD 1769) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004); however, several other subdivisions continue to be used to describe various shifts in assemblage composition. In general, this period is defined by the addition of arrow points and ceramics, as well as the widespread use of bedrock mortars. The fundamental Late Prehistoric assemblage is very similar to the Archaic pattern, but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock surfaces. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred before AD 1400. Millingstones and handstones persisted in higher frequencies than mortars and pestles until the last 500 years (Basgall and Hall 1990); even then, weighing the economic significance of millingstone-handstone versus mortar-pestle technology is tenuous due to incomplete information on archaeological assemblages.

Ethnographic Overview

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; Sparkman 1908; White 1963). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005: 32) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about native life before the Europeans, a significantly large proportion of these informants were born after 1850 (Heizer and Nissen 1973); therefore, the documentation of pre-contact, aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. As Robert F. Heizer (1978) stated, this is an important issue to note when examining these ethnographies, since considerable culture change had undoubtedly occurred by 1850 among the Native American survivors of California.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007).

Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007: 80) A large amount of variation within the language of a group represents a greater time depth then a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla (2007: 71) has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates.

This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The tribes of this area have traditionally spoken Takic languages that may be assigned to the larger Uto–Aztecan family (Golla 2007: 74). These groups include the Gabrielino, Cahuilla, and Serrano. Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto–Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010).

The proposed Project is near an ethnographic transition zone, in an area historically occupied by the Chumash and Gabrielino (Kroeber 1925). The following paragraphs provide ethnographic summaries specific to these Native American communities.

Chumash

The term "Chumash" is derived from a Native American word, initially applied to the people living on Santa Cruz Island (King 1994:6). Chumash now refers to the entire linguistic and ethnic group of societies that occupied the coast between San Luis Obispo and northwestern Los Angeles County, including the Santa Barbara Channel Islands, and inland to the western edge of the San Joaquin Valley. Neighboring groups included the Salinan on the north, Southern Valley Yokuts and Tataviam to the east; and the Gabrielino (Tongva) to the south.

The Chumash spoke six closely related Chumashan languages, which have been divided into two broad groups – Northern Chumash (consisting only of Obispeño) and Southern Chumash (Purisimeño, Ineseño, Barbareño, Ventureño, and Island Chumash) (Mithun 2001:389). While Island Chumash was the most divergent of the five southern languages, Ventureño may have had the most internal variation with at least six distinct dialects. The Chumashan language is currently considered an isolate stock with a long history in the Santa Barbara region, and not part of the Hokan linguistic family (Mithun 2001:304).

Near the coast in the large, permanent Chumash villages, hemispherical dwellings covered by grass or tule mats were arranged in close groups. These were described as "spacious and fairly comfortable" by the Spanish, with light coming in through the top hole where smoke could also exit. Houses were usually very large (15 meters in diameter) and "able to lodge 60 persons and more without hindrance" (Brown 2001:391). Inland, around Santa Clara, houses in smaller villages "resembled the rectangular, matcovered houses of the adjacent Takic speakers but they had many artifacts of types the Spanish later described from the coast" (Grant 1978:518). The villages also contained storehouses, one or more subterranean sweat lodges, and a semi-circular dance ground and associated sacred ceremonial enclosure, with a nearby game field surrounded by low walls (McCall and Perry 1986:18-19). Satellite gathering or processing areas include earth ovens used to roast yucca and other foods, rock shelters, quarries, and bedrock mortars for processing acorns and similar plant resources (King 1994:116). Each Chumash village had a formal cemetery, generally separate from the village proper. Ethnographic records indicate that cemeteries were marked by tall painted poles, and frequently had an entrance area where ceremonies were performed. Within the cemetery, stone, wood or bone markers identified burial sites.

Every village had a chief, or *wot*. The chief was usually male, but hereditary rights to this role were passed down matrilinealy (Johnson 1987). The *wot* had both political and religious ceremonial duties to perform; his assistant, the *paha*, helped officiate at rituals. Other portions of Chumash territory were organized into provinces, or groups of villages ruled by a single chief. Chumash society was also organized into craft guilds. Different crafts were involved – canoe builders, bead making, basketry makers, woodworking and weapon makers were among them (Miller 1988:108). Being a guild member had strong economic advantages. Membership was primarily open to the upper class, and ranking members of the guilds were *'antap* society members. Specific crafts, such as money bead making, an exclusive Island Chumash product, held regional monopolies.

Chumash subsistence varied between coastal and inland resources, but like many indigenous Californian groups, the acorn was a dietary staple. Acorns were gathered in the autumn and stored in the villages, where they were ground to a meal, leached, and then cooked daily. In addition to acorns – mainly from the coast live oak – other nuts, such as pine nuts and walnuts, were collected. Chumash diet also included cattail roots, fruits and pads from *Opuntia* cactus, and bulbs and tubers of plants such as amole (Miller 1988:89). Yucca stalks were harvested and roasted, and the buds and flowers were also gathered. Staples included small hard seeds of several annual and perennial plants such as grass, chia and other sages, and buckwheat. Seasonal resources included berries (blackberry, elderberry, grape, madrone, laurel, wild cherry), mushrooms, and cress.

Seeds were processed using various grinding implements (wooden and stone mortars, pestles, bedrock mortars, handstones). Tools used to gather plant foodstuffs consisted of several forms of gathering baskets, woven seed beaters, and sharpened digging sticks. A variety of basket styles were manufactured for the processing and serving of foods, for straining acorn meal, for leaching the meal, and for cooking acorn meal and other foods in water-tight baskets (Miller 1988:49). Other baskets were made for storing grains, acorns, meal, prepared foods, and other natural resources. Carved steatite bowls, ollas, and comals were also used for cooking, and meals were served on wooden plates and bowls.

On the coast, the wooden plank canoe (*tomol*) was employed in the pursuit of marine mammals and fish. The *tomol* not only facilitated marine resource procurement, but also an active trade network maintained by frequent crossings between the mainland and the Channel Islands. Seals, sea lions, otters, porpoises, and whales were hunted with harpoons. Deep-sea fish such as bonito, sea bass, halibut, barracuda, yellowtail and shark were caught with hooks and lines, harpoons, and deep or shoreline nets.

Local Chumash populations captured mule deer, antelope, cottontail, jackrabbit, mice, and wood rats; mountain and valley quail, dove, resident and migratory waterfowl, among other birds; and various types of reptiles, amphibians, and insects. Predators included mountain lion, coyote, bobcat, and fox. Larger animals, such as mule deer, coyote and fox, were hunted with the bow and arrow; traps and snares were used to capture smaller game. Hunting parties comprised up to eight people (Brown 2001:375). Individuals used throwing sticks to kill rabbits and hares; communal hunting groups used large nets and clubs.

The earliest European visits to the Chumash region began with the Cabrillo, Viscaino and other naval explorers to the southern California coast in the 1500s. The first land expedition through the study area occurred in A.D. 1769 when Gaspar de Portolá led an overland expedition from the newly established settlement at San Diego to San Francisco Bay.

With the secularization of mission lands after 1834, traditional Chumash lands were distributed among grants to private owners. Only in the area of Mission Santa Barbara and Mission San Fernando del Rey were several small ranchos granted to neophytes of these missions, providing a secure home and gardens for a few people. Most Chumash managed to maintain a presence in the area into the early twentieth century as cowboys, farm hands, and town laborers. The Catholic Church provided some land near Mission Santa Ynez for ex-neophytes. This land was eventually was deeded to the U.S. government in 1901 as a 127-acre reservation. This is the sole Chumash reservation, with a recent enrollment of only 158 people (CIAP 2003:144). Since the 1970s, Chumash descendants living in the City of Santa Barbara and the rural areas of San Luis Obispo, Santa Barbara and Ventura Counties have formed social and political organizations to aid in cultural revitalization, to protect sacred areas and archaeological sites, and to petition for federal recognition. Today, the Santa Ynez Band of Chumash Indians in the only federally recognized Chumash tribe.

Gabrielino/Tongva

Based on evidence presented through past archaeological investigations, the Gabrielino appear to have arrived in the Los Angeles Basin around 500 B.C. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

The names by which Native Americans identified themselves have, for the most part, been lost and replaced by those derived by the Spanish people administering the local Missions. These names were not necessarily representative of a specific ethnic or tribal group, and traditional tribal names are unknown in the post-Contact period. The name "Gabrielino" was first established by the Spanish from the San Gabriel Mission and included people from the established Gabrielino area as well as other social groups (Bean and Smith 1978; Kroeber 1925). Many modern Native Americans commonly referred to as Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and refer to themselves as the Tongva (King 1994). This term is used here in reference to the pre-Contact inhabitants of the Los Angeles Basin and their descendants.

The Tongva established large, permanent villages along rivers and streams, and lived in sheltered areas along the coast. Tongva lands included the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina and stretched from the foothills of the San Gabriel Mountains to the Pacific Ocean. Tribal population has been estimated to be at least 5,000 (Bean and Smith 1978), but recent ethnohistoric work suggests a much larger population, approaching 10,000 (O'Neil 2002). Archaeological sites composed of villages with various sized structures have been identified through the Los Angeles Basin. Within the permanent village sites, the Tongva constructed large, circular, domed houses made of willow poles thatched with tule, each of which could hold upwards of 50 people (Bean and Smith 1978). Other structures constructed throughout the villages probably served as sweathouses, menstrual huts, ceremonial enclosures, and communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996).

The largest, and best documented, ethnographic Tongva village in the vicinity was that of Yanga (also known as Yaangna, Janga, and Yabit), which was in the vicinity of the downtown Los Angeles (McCawley 1996:56-57; NEA and King 2004). This village was reportedly first encountered by the Portola expedition in 1769. In 1771, Mission San Gabriel was established. Yanga provided a large number of the recruitments to this mission; however, following the founding of the Pueblo of Los Angeles in 1781, opportunities for local paid work became increasingly common, which had the result of reducing the number of Native American neophytes from the immediately surrounding area (NEA and King 2004). Mission records indicate that 179 Gabrieleno inhabitants of Yanga were recruited to San Gabriel Mission (King 2000:65; NEA and King 2004: 104). Based on this information, Yanga may have been the most populated village in the Western Gabrieleno territory. Second in size, and less thoroughly documented, the village of Cahuenga was located slightly closer, just north of the Cahuenga Pass

Father Juan Crespi passed through the area near this village on August 2-3, 1769. The pertinent sections from his translated diary are provided here:

> Sage for refreshment is very plentiful at all three rivers and very good here at the Porciúncula [the Los Angeles River]. At once on our reaching here, eight heathens came over from a good sized village encamped at this pleasing spot among some trees. They came bringing two or three large bowls or baskets half-full of very good sage with other sorts of grass seeds that they consume; all brought their bows and arrows but with the strings removed from the bows. In his hands the chief bore strings of shell beads of the sort that they use, and on reaching the camp they threw the handfuls of these beads at each of us. Some of the heathens came up smoking on pipes made of baked clay, and they blew three mouthfuls of smoke into the air toward each one of us. The Captain and myself gave them tobacco, and he gave them our own kind of beads, and accepted the sage from them and gave us a share of it for refreshment; and very delicious sage it is for that purpose.
>
> We set out at a half past six in the morning from this pleasing, lush river and valley of Our Lady of Angeles of La Porciúncula. We crossed the river here where it is carrying a good deal of water almost at ground level, and on crossing it, came into a great vineyard of grapevines and countless rose bushes having a great many open blossoms, all of it very dark friable soil. Keeping upon a westerly course over very grass-grown, entirely level soils with grand grasses, on going about half a league we came upon the village belonging to this place, where they came out to meet and see us, and men, women, and children in good numbers, on approaching

> they commenced howling at us though they had been wolves, just as before back at the spot called San Francisco Solano. We greeted them and they wished to give us seeds. As we had nothing at hand to carry them in, we refused [Brown 2002:339-341, 343].

The environment surrounding the Tongva included mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like most native Californians, acorns (the processing of which was established by the early Intermediate Period) were the staple food source. Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925; McCawley 1996).

Tools and implements used by the Tongva to gather and collect food resources included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Trade between the mainland and the Channel Islands Groups was conducted using plank canoes as well as tule balsa canoes. These canoes were also used for general fishing and travel (McCawley 1996).

The collected food resources were processed food with hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925; McCawley 1996).

The Chinigchinich cult, centered on the last of a series of heroic mythological figures, was the basis of religious life at the time of Spanish contact. The Chinigchinich cult not only provided laws and institutions, but it also taught people how to dance, which was the primary religious act for this society. The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built. This cult may be the result of a mixture of native and Christian belief systems and practices (McCawley 1996).

Inhumation of deceased Tongva was the more common method of burial on the Channel Islands while neighboring mainland coast people performed cremation (Harrington 1942; McCawley 1996). Cremation ashes have been found buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966), as well as scattered among broken ground stone implements (Cleland et al. 2007). Supporting this finding in the archaeological record, ethnographic descriptions have provided an elaborate mourning ceremony. Offerings varied with the sex and status of the deceased (Johnston 1962; McCawley 1996; Reid 1926). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996).

The La Brea Tar Pits area (CA-LAN-159) was a known area of Native American use for hunting and the gathering of tar (Westec 1983). Father Juan Crespi, a member of the Portola expedition, passed through the area near this area on August 3, 1769. The pertinent sections from his translated diary are provided here:

> The Captain told me that when they scouted here, in a ravine about half a league to the westward they came upon about forty springs of pitch, or tar, boiling in great surges up out of the ground, and saw very large swamps of this tar, enough to have caulked many ships [Brown 2002:341].

Crespi later returned north of the project site, moving southeast through the Cahuenga Pass on January 16, 1770. He identifies the two villages located on the 1938 Kirkman-Harriman historical Los Angeles map. Here he noted:

> The mountains make an opening on the southwest of the plain, and in a depression at the foot of it we saw a stream, or ponded up water, at which there were two villages belonging to the very good heathens of this place, who came unarmed as soon as they saw us in order to greet us, and were very happy to see us again. They brought us some gruel, and the chief of one village guided us through the aforesaid opening in the southwestern range; and we came into a small hollow, in which upon two sides we came across a good deal of water, with a good deal of small watering places of the small hollow of *Los Santos Martires San Cleto y San Marcelino*, the Holy Martyrs Saint Cletus and Saint Marcellinus. [Brown 2002:663]

Historic-Period Overview

Post-Contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769-1822)

Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabríllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabríllo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Cleland 2005; Gumprecht 2001).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio

Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823, including Mission San Fernando Rey de España (Cleland 2005; Gumprecht 2001; Jorgensen 1982; Kyle 2002; Roderick 2001).

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angeles of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (Gumprecht 2001; Jorgensen 1982; Kyle 2002).

The expedition camped at a watering place at the base of the San Gabriel Mountains in 1769 and the location was noted in Crespi's diary. The mission was founded in September 1797 by Father Fermín Lasuén and Fray Francisco Dumetz. The mission consisted of a church, fountains, cloisters and extensive agricultural grounds outside the area. The Spanish missionaries impressed the native Tongva, Tatavium, and Chumash tribes into Christianity through baptism and service as neophytes. The land taken by the Spanish was not repatriated to these tribes (Cleland 2005; Roderick 2001).

Mexican Period (1822-1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated ranchos and presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Cleland 2005; Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. In 1846, Mission San Fernando lands were issued as a land grant by then governor Pío Pico to Eulogio de Celis, and renamed simply Ex-Mission San Fernando (Figure 4). The new rancho lands were bound by Rancho San Francisco to the north, to the east by Rancho Tujunga, to the west by Rancho Simí, and on the south by the Santa Monica Mountains (Cleland 2005).

American Period (1848-Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident Californios and Americans in the San Bernardino area. The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. Territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains when available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005).

De Celis retained his rancho after the war until his death in 1874. After de Celis' death, his family sold the rancho to California State Senator Charles Maclay and business partners George K. and Benjamin F. Porter. The Porters claimed the land west of present-day Sepulveda Boulevard. Isaac Van Nuys and J.B. Lankershim acquired the southern half of the valley south of Roscoe Boulevard. Maclay's rancho extended from present day Sepulveda Boulevard east to the San Gabriel foothills. The Porter brothers' ranch would be one of the last sections of the San Fernando Valley to be developed. In 1888, Benjamin Porter sold a portion of the property near the Santa Susana Pass to the Porter Land and Water Company, which laid out the town of Chatsworth Park (Dumke 1944; Kyle 2002; Roderick 2001).

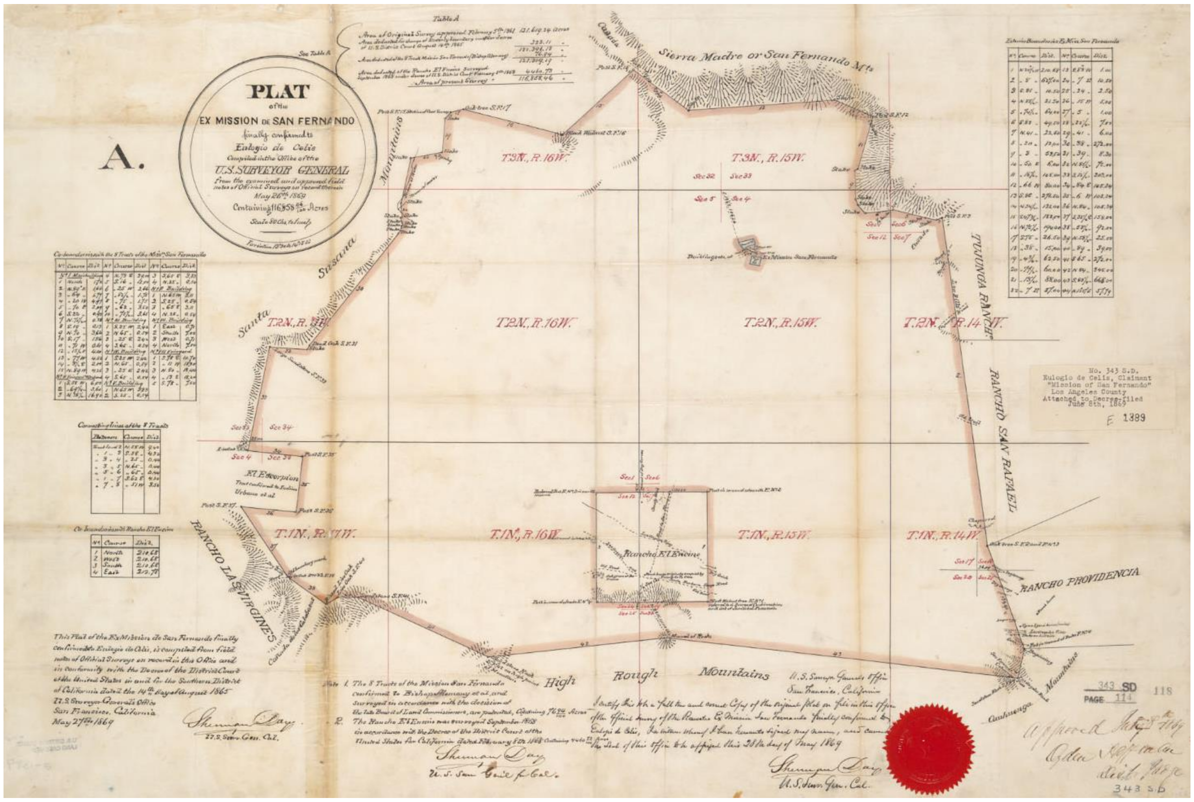


Figure 4. Plat of the Ex Mission de San Fernando [Calif.] : finally confirmed to Eulogio de Celis; U.S. Surveyor General, May 26, 1869 (UC Bancroft Library Land Case E-1389)

Project Site Historic Context

Town of Chatsworth

The original 1888 town site laid out by the George R. Crow of the Porter Land & Water Company planned Chatsworth Park as a farming community with land divided into 10-acre plots along three major streets: Ben Porter Avenue, Devonshire Avenue, and Fernando Avenue. Sited along a major stage route connecting Los Angeles and Santa Barbara through Santa Susana Pass, in 1893 Southern Pacific Railroad built a depot and rail line to the town, offering a way to transport crops, mainly wheat, to the greater Los Angeles area. That same year another town plat was filed for Chatsworth Park, adding a railroad station, Main Street, and commercial corridor, while still maintaining its agricultural identity (Height 1953; Roderick 2001; Wanamaker 2011; Watson 1991).

Los Angeles voters approved $22 million for the Los Angeles Aqueduct project in 1905; construction on the aqueduct began in 1908 and completed in 1913. The aqueduct, running from Owens Valley to the City of Los Angeles, brought intensive land speculation and settlement to the San Fernando Valley. However, to take advantage of the City of Los Angeles' new water source, surrounding communities had to agree to be annexed to the City of Los Angeles. Formerly independent towns, such as Pacoima, Roscoe, and Lankershim, voted for annexation in the years immediately after the aqueduct was completed. With the new source of water, San Fernando Valley farmers exchanged dry farming for irrigation system farming to provide water to their crops and orchards. Agriculture expanded throughout the San Fernando Valley and specific towns became associated with certain crop production. Citrus and nut tree orchards became common in the northern portion of San Fernando Valley, including at Chatsworth Park (Height 1953; Preston 1965; Roderick 2001; Wanamaker 2011; Watson 1991).

Intended as the nineteenth and last in a chain of reservoirs of the Los Angeles Aqueduct System, the Chatsworth Reservoir was completed in 1918 (Figure 5). Around the same time a series of trunk lines were installed, typically under roadways, to connect the reservoirs of the Los Angeles Aqueduct System and to distribute water, including the De Soto Trunk Line, Roscoe Trunk Line, Canoga Topham Trunk Line, and Ventura Trunk Line in 1917. These four trunk lines were riveted steel pipes ranging in diameter from 24 inches to 52 inches, and served Chatsworth and the surrounding areas. The Chatsworth High Line aqueduct ran along the northern edge of the valley, connecting the San Fernando Reservoir to Chatsworth Reservoir and replacing a series of temporary, open-air ditches installed in preparation of the permanent aqueduct system, increasing arable land in San Fernando Valley from 3,000 acres in 1914 to 30,000 acres in 1917 (D.H. Anderson Publishing Company 1916; Geiger 1918).

In 1920, Chatsworth was annexed to the City of Los Angeles. That same year, the San Fernando Valley population was estimated at 20,000 people. By 1930, the valley's population doubled to just over 51,000. The agricultural economy of Chatsworth remained stable through the Great Depression. By 1940, the San Fernando Valley population was 155,443. Despite the growing residential population, small-scale farms and orchards still dominated land use in the San Fernando Valley through World War II (Roderick 2001; Wanamaker 2011).

World War II brought increased urbanization as military operations near Los Angeles brought in hundreds of thousands of soldiers and their families. After the war, both employment opportunities and affordable real estate kept families in the area. Suburban sprawl from Los Angeles reached the San Fernando Valley and brought another 250,000 people to the valley, raising its 1950 population to just over 400,000. Dense housing developments and residential areas constricted formerly agricultural areas, all but pushing them into the surrounding foothills and margins of the Valley for the rest of the century. In 1954, at the northern end of De Soto Avenue at Oat Mountain, the U.S. Defense Department developed a U.S. Army base and launch site for the Nike Hercules missiles, called Nike Missile Base LA-88 (Figure 6). The military operation there further fueled the influx of residents to the Chatsworth Area. By the end of the 1950s, nine of the ten largest manufacturers in the Valley served the Defense Department. Lockheed, Rocketdyne, Litton Systems, Ramo-Woolridge, RCA, Marquardt, and Radioplane each employed over a thousand employees (Preston 1965; Roderick 2001; Watson 1991).

As automobiles and freeways permeated the culture of the country and the state of California, so too did they impact Chatsworth. In 1960 the Ventura Freeway finally opened, and between 1972 and 1980, State Route 118 was completed in the northern portion of Chatsworth, north of the project site. These highways brought an emphasis on automobile travel and allowed residents ease of access for commuting around the greater Los Angeles area and the Santa Barbara area (Roderick 2001).

Winnetka and Canoga Park

In 1846 Spanish native Eulogio de Celes purchased what was the former Mission de San Fernando. The 116, 585-acre parcel eventually became the communities of Winnetka, Canoga Park, and Woodland Hills. Subdivision of the land into smaller parcels began in the 1880s, coinciding with completion of the transcontinental railroad through Los Angeles. In 1913 the aqueduct was completed, ensuring a steady supply of water to the region. Everything was in place by the early 20th century to support a growing population (WCC 2018).

In 1920, Charles Weeks was enticed by the Los Angeles Chamber of Commerce to establish the Weeks Poultry Colony, a group of one-acre egg farms, in the region. Weeks then founded Winnetka in 1922. The Colony was successful and developed a strong sense of community. The community sought to bring social, intellectual, and artistic enlightenment to the region, and was responsible for laying the cornerstone of the Owensmouth Community Church c. 1920-23. The modern boundaries of Winnetka are Nordhoff Street to the north, Corbin Avenue to the east, Victory Boulevard to the south, and De Soto Avenue to the west (WCC 2018).

Adjacent to Winnetka lies what is now Canoga Park. Originally known as Owensmouth, the town started as an agricultural community that produced wheat, sugar, beets, citrus, walnuts, chickens, and eggs. The town was founded on March 30, 1912, around the same time as the aqueduct was finished, and in 1931 the name was officially changed to Canoga Park. The following decade Pierce College was founded in the town, and the 1950s saw large aerospace firms like Rocketdyne, Litton, and Hughes Aircraft move into the area. The community's growth mirrored the increase in jobs and educational opportunities. In the 1960s, Canoga Park became a suburb of Los Angeles when the 101 Freeway was completed (CPWHCC 2017).

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5 BACKGROUND RESEARCH

5.1 CHRIS Records Search

On August 28, 2019, Dudek completed a search of the CHRIS at the SCCIC, located on the campus of California State University, Fullerton of the proposed Project APE and a half (0.5) mile buffer. This search included mapped prehistoric and historic archaeological resources and historic built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the proposed Project APE, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility. The confidential SCCIC records search results are also provided in Confidential Appendix B.

Previously Conducted Cultural Resource Studies

The SCCIC records indicate that 77 previous cultural resources technical investigations have been conducted within a 0.5-mile radius of the proposed Project APE between 1970 and 2013. Of these, 16 studies overlap or are adjacent to the proposed Project APE. Table 1, below, summarizes all 77 previous cultural resources studies followed by a brief summary of each study that overlaps or are adjacent to the proposed Project APE.

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-00026	Major, Gary W.	1974	Assessment of the Archaeological Resources and the Impact of Development of Highway 118 Areas to Be Used As Fill Sites in the San Fernando Valley	Outside
LA-00035	Gates, Gerald R.	1974	Assessment of the Archaeological Impact by the Development of Browns Creek, Unit 4 and Browns Debris Basin City of Los Angeles and Unincorporated Territory of the County of Los Angeles, California	Overlaps
LA-00053	Major, Gary W.	1974	Archaeological Assessment of Tentative Tract No. 32472 for Tierra Engineering Co.	Outside
LA-00071	Leonard, Nelson N. III	1974	An Archaeological Evaluation of Proposed Changes in the Use of LAN-357	Outside
LA-00081	Rosen, Martin D.	1975	Evaluation of the Archaeological Resources for the Areawide Facilities Plan for the Las Virgenes Municipal District, (Malibu Coast, Western Santa Monica Mountains, Southern Simi Hills), Los Angeles and Ventura Counties.	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-00160	Dames and Moore	1988	Phase 1 Cultural Resources Survey Fiber Optic Cable Project Burbank to Santa Barbara, California for Us Sprint Communications Company	Overlaps
LA-00304	Pence, Robert L.	1978	Archaeological Assessment of a Proposed Development in Chatsworth, City of Los Angeles, California	Outside
LA-00377	Van Horn, David M.	1978	Ultrasystems Project: Archaeological Survey	Outside
LA-00666	Singer, Clay A.	1979	Cultural Resource Survey and Impact Assessment for Tentative Tract No. 38956, in the Community of Chatsworth, City and County of Los Angeles, California.	Outside
LA-00838	Tartaglia, Louis J.	1980	An Archaeological Assessment of the Walker Cairn Site (4-LAn 21), Chatsworth, California	Outside
LA-01258	Singer, Clay A.	1982	Cultural Resource Survey and Impact Assessment for a Portion of the Former Warner Ranch in Woodland Hills	Outside
LA-01426	Clewlow, William C. Jr.	1984	Archaeological Resource Assessment of a 2.78 Acre Parcel: Canoga Park, Los Angeles County, California	Outside
LA-01677	Parker, John	1987	Cultural Resource Evaluation and Mitigation Alternatives for Archaeological Site CA-LAN-209	Outside
LA-01744	White, Robert and L. White	1988	Archaeological Survey and Test Excavation in Unit 18 of the Porter Rance, Los Angeles County, California	Outside
LA-01771	Anonymous	1989	Draft Environmental Impact Report Porter Ranch Land Use/Transportation Specific Plan	Overlaps
LA-02010	Briuer, Frederick L.	1976	Assessment of the Archaeological Impact of the Proposed Development of the 5 Acres of Tentative Tract #30350	Outside
LA-02029	Clewlow, William C. Jr.	1975	Winnetka Avenue Grade Separation at the Southern Pacific Company's Coast Line Track W.o. 61651 Environmental Impact Report Draft	Outside
LA-02034	Bissell, Ronald M. and Kenneth Becker	1990	Cultural Resources Reconnaissance of the Devil Canyon Project Area, 44 Acresin Chatsworth, Los Angeles County, California	Outside
LA-02086	Brown, Robert S.	1989	Summary and Assessment of Archaeological Resources on a 1300 Acre Portion of Porter Ranch Property in the Santa Susana Foothils, Los Angeles County	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-02133	Sanburg, Delmer, Jr., Dana Bleitz Sanburg, Frank Bleitz, and Edith Bleitz	1978	Two Rock Art Sites in the San Fernando Valley: VEN-149 and LAN-357	Outside
LA-02204	Evans, Stuart A. and Ronald M. Bissell	1990	Cultural Resources Reconnaissance of the Continental Community Project Area, 55 Acres in Chatsworth, Los Angeles County, Californi	Outside
LA-02250	Anonymous	1991	Draft Environmental Impact Report: Chatsworth Porter Ranch District Plan Restudy	Overlaps
LA-02366	Wessel, Richard L.	1976	Draft Master Environmental Impact Report	Overlaps
LA-02390	Romani, John F., Dan Larson, Gwen Romani, and Arlene Benson	1988	Astronomy, Myth, and Ritual in the West San Fernando Valley.	Outside
LA-02623	Lowe, P. J.	1977	Pictographs of the Santa Monica Mountains Status Report As of May 15, 1977 (same As V-1134)	Outside
LA-02643	Foster, Reginald K.	1992	Supplemental Draft Environmental Inpact Report_eir No. 675-81 Zc_(gpa)(hd)(sub)(ps)(sup)(da)	Outside
LA-02645	Peak and Associates, Inc.	1991	Class 3 Cultural Resource Assessment of the Proposed Carpintera and Southern Reroutes, Santa Barbara, Ventura, and Los Angeles Counties, California	Overlaps
LA-02950	Anonymous	1992	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	Overlaps
LA-03405	Otte, Jim	1971	Field Archaeology 1971 CA-LAN-357	Outside
LA-03406	Gilmore, Jack	1972	LAN-357; Chatsworth-Walker Site	Outside
LA-03499	Eisentraut, Phyllisa	1994	Metropolitan Water District West Valley Project Cultural Resources Technical Report	Outside
LA-03635	Anonymous	1973	Draft Master Environmental Assessment Warner Center Woodland Hills, California a Development of Kaiser Aetna	Overlaps
LA-03639	King, Thomas F.	1970	Santa Monica Mountains State Park (undeveloped)	Outside
LA-03715	Anonymous	1977	Historic Property Survey Lassen Street - Mason Avenue to Topanga Canyon Boulevard W.o. 21121	Adjacent
LA-03718	Anonymous	1977	Historic Property Survey Parthenia Street - Lurline Avenue to Canoga Avenue, W.o. 21250	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-03744	Anonymous	1977	Historic Property Survey Desoto Avenue Between Sherman Way and Victory Boulevard W.o. 21247	Overlaps
LA-03847	Whitley, David S.	1992	Shamanism and Rock Art in Far Western North America	Outside
LA-04124	Barajas, Luisa	1972	Semester Report for Anthropology 7	Outside
LA-04137	Walker, Edwin Francis	1998	Five Prehistoric Archeological Sites in Los Angeles County, California	Outside
LA-04182	McLean, Deborah K.	1998	Cultural Resource Assessment for Pacific Bell Mobile Services Telecommunications Facility La 682-04, 20823 Roscoe Boulevard, Winnetka, City and County of Los Angeles, California	Outside
LA-04832	Lapin, Philippe	2000	Cultural Resource Assessment for Pacific Bell Wireless Facility La 683-01, County of Los Angeles, California	Outside
LA-05046	Duke, Curt	2000	Cultural Resource Assessment for Pacific Bell Wireless Facility La 209-02, County of Los Angeles, Ca	Outside
LA-05047	Lapin, Philippe	2000	Cultural Resource Assessment for Pacific Bell Wireless Facility La 209-01, County of Los Angeles, Ca	Outside
LA-05050	Duke, Curt	1999	Cultural Resource Assessment for Pacific Bell Mobile Services Facility La 187-01, County of Los Angeles, Ca	Outside
LA-05856	Anonymous	2000	Phase I Archaeological Survey of the Chatsworth Ridge Estates Study Area, Los Angeles County, California	Outside
LA-05974	Duke, Curt	2000	(Duplicate of LA-4997) Cultural Resource Assessment for Pacific Bell Wireless Facility La 441-15, County of Los Angeles, California	Overlaps
LA-06007	Horne, Melinda C.	2002	Archaeological Survey Report Los Angeles Pierce College Los Angeles County, California	Outside
LA-06148	Sikes, Nancy E.	2002	Cultural Resources Monitoring and Contractor Cultural Resources Education for Sub Area G-1 (tract Nujbers 50511-01, 50511-02 and 50512-03) Within Unit 15 of the Porter Ranch Development Project, Los Angeles, California	Outside
LA-06599	Foster, John M.	2002	Historic Resource Evaluation Report Mason Avenue At-grade Crossing and Safety Improvements Project Los Angeles City, California	Overlaps

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-06757	Foster, John M.	2002	Archaeological Investigation for West Valley Animal Shelter City of Los Angeles, California	Outside
LA-06772	McKenna, Jeanette A.	2002	Cultural Resource Assessment/evaluation for Nextel Communications Site CA-8105c, Woodland Hills, Los Angeles County, California	Outside
LA-06916	Mason, Roger D.	2003	Cultural Resources Records Search and Field Survey Report for a Verizon Telecommunications Facility: Lassen La in the City of Chatsworth, Los Angeles County, California	Outside
LA-07835	Whitley, David S. and Joseph M. Simon	2000	Phase I Archaeological Survey/class III Inventory, San Fernando Valley East-west Transit Corridor, Brt Alternative, Study Area, Los Angeles, California	Overlaps
LA-07837	Knight, Albert	2001	Rock Art of the Santa Monica and the Santa Susana Mountains	Outside
LA-08193	Bonner, Wayne H.	2005	Cultural Resources Records Search Results and Site Visit for Cingular Wireless Candidate Nl-034-03 (jon's Market), 20151 Roscoe Boulevard, Winnetka, Los Angeles County, California	Outside
LA-08195	Bonner, Wayne H.	2005	Cultural Resources Records Search Results and Site Visit for Cingular Wireless Site Nl-034-02 (sprint Monopole), 20160 Roscoe Boulevard, Winnetka, Los Angeles County, California	Outside
LA-08255	Arrington, Cindy and Nancy Sikes	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	Overlaps
LA-08283	Bonner, Wayne H.	2007	Cultural Resources Record Search and Site Visit Results for Royal Street Communications, Llc Candidate La0021a (holy Shepard Lutheran Church), 10347 Mason Avenue, Chatsworth, Los Angeles County, California	Outside
LA-08691	Bonner, Wayne H.	2006	Cultural Resources Records Search and Site Visit Results for Cingular Wireless Candidate Vn-0084-02 (victory Parking Ramp), 21200 Victory Boulevard, Woodland Hills, Los Angeles County, California	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-08803	Bonner, Wayne H.	2006	Cultural Resources Records Search and Site Visit Results for Cingular Wireless Candidate NI-0177-03 (Mcdonald's), 20932 Devonshire Street, Chatsworth, Los Angeles County, California	Outside
LA-09071	Billat, Scott	2005	Field Inventory Report: Assessment for Browns Canyon (CA-8102a) Wireless Facility, 11056 N. De Soto Ave. Chatsworth, Los Angeles County, California	Overlaps
LA-09869	Wayne Bonner	2008	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV11272D (Golden Oaks), Northridge, Los Angeles County, California	Outside
LA-10259	Bonner, Wayne H. and Arabesque Said	2010	Cultural Resource Records Search and Site Visit Results for T-Mobile USA Candidate SV11800C (Corisco Colo), 20426 Corisco St., Chatsworth, Los Angeles County, CA.	Outside
LA-10342	Billa, Lorna	2009	Collocation ("CO") Submission Packet, FCC Form 621, Project Name: Warner Plaza, Project No. CA-2766A	Outside
LA-10543	Gust, Sherri	2003	Archaeological Initial Study Report and mitigation plan for the San Fernando Valley MRT Fiber Optic Line Project, Cities of Canoga Park, Burbank and Los Angeles, California	Outside
LA-10582	Billat, Lorna	2008	New Tower Submission Packet - Trees & Things	Outside
LA-10637	Knight, Albert	1999	ROCK ART of the SANTA MONICA MOUNTAINS and the SIMI HILLS	Outside
LA-10666	Bonner, Wayne	2010	Cultural Resource Records Search and Site Visit Results for T-Mobile USA Candidate SV12176A (Hope Chapel), 7930 Mason Avenue, Canoga Park, Los Angeles County, California	Outside
LA-10708	Bonner, Wayne	2010	Cultural Resource Records Search and Site Visit Results for T-Mobile USA Candidate SV12271-A (Mason Colo), 10347 Mason Avenue, Chatsworth, Los Angeles County, California	Outside
LA-10927	Bonner, Wayne	2011	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate SV12452-A (Mason & Parthenia JPA), 8601 Mason Avenue, Winnetka, Los Angeles County, California	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number	Author	Year	Report Title	Proximity to Proposed Project APE
LA-11149	Romani, John	1981	California State University, Northridge, Astronomy and Social Integration: An Examination of Astronomy in a Hunter and Gatherer Society. A thesis submitted in partial satisfaction of the requirements for the degree of Masters of Arts in Anthropology.	Outside
LA-11532	Martorana, Dean	2011	VZW Parker 4239, 11056 N. Desoto Avenue Chatsworth, CA	Overlaps
LA-12064	Vincent, Ann	2012	Chatsworth Early Residents, Julius Fried	Outside
LA-12065	Vincent, Ray and Vincent, Ann	2012	Chatsworth Past and Present	Outside
LA-12386	Bonner, Wayne	2013	Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate CLV0017 (SBA Faux Water Tower), 20946 Devonshire Street, Chatsworth, Los Angeles County, California	Outside
LA-12505	Wallace, James, Dietler, Sara, and Kry, Linda	2012	Draft Phase I Cultural Resources Assessment San Fernando Valley Water Recycling Project City of Los Angeles, California	Outside
LA-12563	Fulton, Phil	2013	Cultural Resources Assessment Class I Inventory, Verizon Wireless Services Eton Facility, City of Los Angeles, Los Angeles County, California	Outside

LA-00035

Assessment of the Archaeological Impact by the Development of Browns Creek, Unit 4 and Browns Debris Basin (Gates 1974) reports the results of a cultural study prepared for the Los Angeles County Flood Control District's proposed flood control debris basin within Browns Creek. The study included a records search and an intensive pedestrian survey of the 35-acres of planned development. The study overlaps a portion of the current proposed Project APE at the staging area. The study identified three prehistoric archaeological sites within one-mile of the project, including one village site (CA-LAN-209) adjacent to the proposed development area. The pedestrian survey resulted in the discovery of a newly identified site within the proposed development area consisting of an extensive prehistoric lithic scatter (CA-LAN-649). The study determined that both sites (CA-LAN-209 and CA-LAN-649) would be impacted by project development, and recommended either avoidance of the sites or testing, should avoidance not be feasible. None of the prehistoric sites discussed in this study are within or adjacent to the current proposed APE, therefore, the proposed Project will have no impact on these resources.

LA-00160

Phase I Cultural Resources Survey Fiber Optic Cable Project Burbank to Santa Barbara (Dames & Moore 1988) reports the results of a cultural resources assessment for a proposed 96-linear mile fiber optic cable throughout Los Angeles, Ventura, and Santa Barbara Counties from Burbank to Santa Barbara. The construction corridor is within the Southern Pacific Railroad right-of-way and overlaps a portion of the current proposed Project APE main alignment. The study included a records search and field survey. Of the 27 sites identified within or immediately adjacent to the construction corridor as a result of the study, none were found in the vicinity of the current proposed Project APE.

LA-01771

Draft Environmental Impact Report Porter Ranch Land Use/Transportation Specific Plan (City of Los Angeles 1989) reports the results of a cultural resources assessment for the proposed Specific Plan area consisting of approximate 1,300-acres of undeveloped land within northwest San Fernando Valley. A portion of the Specific Plan area overlaps the staging area within the current proposed Project APE. The assessment included a records search of the entire Specific Plan area, as well as site visits to all five previously recorded prehistoric archaeological sites within the Specific Plan area. Based on the site visits and previous testing programs at the sites, the study determined that none of the sites contains significant archaeological deposits. No specific mitigation for archaeological resources was recommended aside from standard procedures regarding the unanticipated identification of archaeological resources during construction. None of the prehistoric sites discussed in this study are within or adjacent to the current proposed APE, therefore, the proposed Project will have no impact on these resources.

LA-02250

Draft Environmental Impact Report Chatsworth Porter Ranch District Plan Restudy (EIP Associates 1991) reports the results of a cultural resources assessment for the proposed revised Chatsworth-Porter Ranch District Plan that intends to guide future development within the district for multiple decades. The District Plan area is vast, subsuming the main alignment and staging area of the current proposed Project APE. The 1991 study identified five historical areas within the District Plan area that were declared Historic-Cultural Monuments by the City of Los Angeles, Cultural Heritage Commission, none of which are in the vicinity of the current proposed Project APE. Additionally, the study provided a map of culturally sensitive areas within the District Plan area. Whilst the potential staging area for the proposed Project is within an area considered to be archaeologically sensitive, the Project alignment is not. None of the resources discussed in this study are within or directly adjacent to the current proposed Project APE.

LA-02366

Draft Master Environmental Impact Report (Wessel 1976) reports the results of a cultural resources assessment of 1,200-acres of undeveloped land within Porter Ranch. The study overlaps a portion of the current proposed Project APE staging area. The study determined that project development would impact three prehistoric sites, none of which are within close proximity to the current proposed Project APE. The recommended mitigation measure was to conduct testing at the three sites.

LA-02645

Class 3 Cultural Resource Assessment of the Proposed Carpinteria and Southern Reroutes (Peak and Associates, Inc. 1991) reports the results of an archaeological assessment for the proposed reroute of the Pacific Pipeline System (see report LA-02950 below for details on the Pacific Pipeline) with two alternate routes totaling approximately 58-miles. The Carpinteria reroute runs from the community of Serena to Rincon Point near Carpinteria in Santa Barbara County. The Southern reroute begins near the community of Montalvo and terminates near Burbank, crossing through Ventura and Los Angeles Counties. The reroute overlaps a portion of the main alignment of the current proposed Project APE. No cultural resources were identified in this study are located in the vicinity of the current proposed Project APE.

LA-02950

Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project (Peak & Associates 1992) reports the results of a cultural resources assessments for the Pacific Pipeline System, which ran between Gaviota in Santa Barbara County and refineries in El Segundo and Long Beach for a total of 171-miles. The assessment included a records search, background research, and intensive pedestrian surveys of the proposed alignment. The alignment overlaps a portion of the main alignment of the current proposed Project APE. No cultural resources identified in this study are located in the vicinity of the current proposed Project APE .

LA-03635

Draft Environmental Assessment Warner Center (Ultrasystems, Inc. 1973) reports on the results of a cultural resources assessment of a proposed development within Woodland Hills. The study overlaps a portion of the Victory Boulevard alignment of the current proposed Project APE. The 1973 study area was systematically surveyed for the presence of archaeological resources, though no sites were identified. The study provided no recommendations for cultural resources.

LA-03715 (adjacent)

Historic Property Survey Lassen Street (City of Los Angeles 1977) reports the results of a Cultural and Historical Properties Survey for the proposed widening and improvement of Lassen Street from Mason Avenue to Topanga Canyon Boulevard in the community of Chatsworth. The study abuts the main alignment of the current proposed Project APE. No cultural resources were identified as a result of the 1977 records search and pedestrian survey. The study determined the project would not affect historic properties.

LA-03744

Historic Property Survey DeSoto Avenue Between Sherman Way and Victory Boulevard (City of Los Angeles 1977) reports the results of a Historic Property Survey for the proposed widening of DeSoto Avenue in the community of Canoga Park. The study overlaps a portion of the Victory Boulevard portion of the current proposed Project APE. No cultural resources were identified as a result of the 1977 records search and pedestrian survey. The study determined the project would not affect historic properties.

LA-05974

Cultural Resource Assessment for Pacific Bell Wireless Facility LA 441-15 (Duke 2000) reports the results of a cultural resources study for the proposed installation of a telecommunications facility along East Pacific Street in the City of Carson. The study overlaps a portion of the staging area of the current proposed Project APE. No cultural resources were identified as a result of the records search and pedestrian survey. The study provided no further cultural resources considerations.

LA-06599

Historic Resource Evaluation Report Mason Avenue At-Grade Crossing and Safety Improvements Project (Foster 2002) reports the results of a Historic Resource Evaluation Report for proposed construction of an at-grade railroad crossing on Mason Avenue between Prairie Street and Corisco Street in Chatsworth. The study overlaps a portion of the main alignment of the current proposed Project APE. At the request of the State Historic Preservation Officer and Caltrans, the study included an evaluation of the entire alignment of Union Pacific railroad from Montalvo to Burbank known as the Montalvo Cut-off. The Montalvo Cut-off was built to cut operating costs into Los Angeles and provide commercial transportation from San Francisco to Los Angeles. The study found the Montalvo Cut-off alignment eligible under NRHP Criterion A for being an integral part of the Southern Pacific Coast Line Branch; however, a review of the Chatsworth Historic Inventory (HRI) indicates that the portion of the resource that intersects the Project APE was found ineligible for the NRHP by consensus through the Section 106 process (status code 6Y).

LA-07835

Phase I Archaeological Inventory Survey/Class III Inventory, San Fernando Valley East-West Transit Corridor, BRT Alternative, Study Area (Whitley and Simon 2000) reports the results of a cultural resources assessment of the proposed construction of the approximately 14-mile long dedicated rapid transit bus corridor that extends from North Hollywood to Canoga Park, overlapping a portion of Victory Boulevard of the current proposed Project APE. No cultural resources were identified within the study area as a result of the records search and pedestrian survey. The project was found to not affect historic properties and not impact historical resources. No additional cultural resources work was recommended.

LA-08255

Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II (Arrington and Sikes 2006) reports the results of a series of archaeological assessments for proposed maintenance of the fiber optic cable within the Qwest network which runs for approximately 1,431 linear miles between Oregon and Arizona, running through California. The assessments included records searches, background research, Native American consultation, and intensive pedestrian surveys for the proposed alignments. The pipeline alignment overlaps a portion of main alignment of the current proposed Project APE. No archaeological resources were identified through the 2006 records search and intensive pedestrian survey in the vicinity of the current proposed Project APE.

LA-09071

Field Inventory Report: Assessment for Browns Canyon (CA-8102a) Wireless Facility, 11056 North DeSoto Avenue (Billat 2005) reports on the results of the Historic Property Survey for the proposed construction of a Wireless Telecommunications Services facility in the community of Chatsworth. The study overlaps a portion of the staging area of the current proposed Project APE. No cultural resources were identified within the study area as a result of the records search and pedestrian survey. The study determined the project would not affect historic properties.

LA-11532

VZW Parker 4239 (Martorana 2011) reports the results of a cultural resources assessment of the proposed installation of a water tank outfitted with wireless telecommunication antennas and appurtenances located at along North DeSoto Avenue in Chatsworth. The study overlaps a portion of the staging area of the current proposed Project APE. No historic properties were identified as a result of the records search, Native American coordination, and pedestrian survey. Therefore, the study determined that the project would not affect historic properties.

Previously Recorded Cultural Resources

The SCCIC records indicate that no cultural resources intersect the proposed Project APE. However, eight cultural resources have been previously recorded within a 0.5-mile of the proposed Project APE. Of these, five consist of prehistoric archaeological sites, including two habitation sites and three lithic scatters. The remaining three resources include two historic-age homestead sites and one built environment resource consisting of a religious building. Of the five prehistoric archaeological sites, one (P-19-000664) was tested and found not eligible. The church building (P-19-188879) was evaluated and found ineligible for the NRHP. The remaining four prehistoric archaeological sites and two historic-age archaeological sites have yet to be evaluated. All eight resources are summarized in Table 2, below.

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
000209	Prehistoric site	Occupation site including a subsurface deposit, rock shelters, petroglyphs, and bedrock mortars.	Not evaluated	1977 (Hector, S.); 1990 (Becker, K.)	Outside

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
000357	Prehistoric site	Large occupation site with several loci that include a subsurface deposit, rock shelters, petroglyphs, bedrock mortars, and a burial.	Not evaluated	n.d. (Glassow, M.); 1969 (Singer, C. and J. West); 1987 (Romani, J.F.); 1990 (Salls, R.A. and D.E. Bleitz)	Outside
000649	Prehistoric site	Extensive lithic scatter including flaked stone tools and debitage. Material type predominantly quartzite and chert.	Not evaluated	1974 (Gates, G. and G. Toren); 1990 (Becker, K.); 2000 (Whitley, D.S.)	Outside
000664	Prehistoric site	Low density lithic scatter of flakes, cores, hammerstones, manos, and metate fragments. Test excavations occurred in 1987. Site destroyed by development in 2002.	Recommended not eligible by evaluator. Site destroyed.	1976 (Wessel, R.L.); 2003 (Sikes, N.E.)	Outside
001743	Prehistoric site	Low density lithic scatter of quartzite flakes and scraper	Not evaluated	1990 (Becker, K.); 2000 (Whitley, D.S.)	Outside
150432	Historic-age site	Remnants of a historic-age homestead.	Not evaluated	1978 (Edberg, B.)	Outside
150433	Historic-age site	Remnants of a historic-age homestead.	Not evaluated	1978 (Edberg, B.)	Outside

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
188879	Historic-age Building	Hope Chapel property: 7930 Mason Avenue (built circa 1948).	6Y: Determined ineligible for NRHP; not evaluated for CRHR or Local listing.	2010 (Crawford, K.A.)	Outside

5.2 Other Resource Identifications

The resource discussed below does not appear in Table 2 as a result of the SCCIC records search. Rather, this resource was identified through additional research efforts.

The Chatsworth Momonga/Mission Trail

The Chatsworth Momonga/Mission Trail is a locally designated historical resource that runs adjacent to the northern portion of the Project area. The Trail begins at the intersection of De Soto Avenue and Rinaldi Street and ends at Limekiln Canyon Trail, 250 feet west of Tampa Avenue. It passes through 23 parcels of mostly vacant land. The trail is on a flat, even grade with a slight incline at the beginning of the trail and a slight decline at the end. On November 15, 2018, the trail was officially designated as a City of Los Angeles Historic-Cultural Monument (HCM) under City Criteria 1, based on the following summarized statement of significance:

> The Chatsworth Momonga/Mission Trail "reflects the broad cultural, economic, or social history of the nation, state, or community" for its pre-Spanish settlement use as a route between the Native American villages of Achoicominga and Momonga, and for its association with the historic network of trails that connected the San Fernando and Ventura Missions during California's Mission Period (1769-1833).

Relative to the Project APE, the Trail begins south of the APE at the northeast corner of Rinaldi Street and De Soto Avenue and is defined by a simple metal pipe handrail on either side of the trail. The trail runs along the north side of Rinaldi Street for approximately 300 feet before turning north behind Sierra Canyon High School. The trail then straddles the border between LADWP's De Soto Reservoir property to the east and Sierra Canyon High School to the west, before crossing east over Rinaldi Street. At no point does the trail intersect the Project APE.

5.3 Aerial Photograph and Historic Map Review

Dudek consulted historic maps and aerial photographs to understand development of the proposed Project APE and vicinity. Historical aerial photographs were reviewed for the proposed Project APE for the following years: 1947, 1952, 1959, 1964, 1967, 1969, 1972, 1977, 1978, 1980, 1994, 1995, 2002, 2003, 2004, 2005, 2009, 2010, 2012, 2014, and 2016 (NETR 2019a). Historical topographical maps were also reviewed for the proposed Project APE for the following years: 1903, 1908, 1913, 1916, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1932, 1933, 1937, 1939, 1940, 1941, 1943, 1944, 1947, 1948, 1953, 1954, 1958, 1959, 1964, 1965, 1966, 1967, 1968, 1970, 1977, 1980, 1984, 1986, 1992, 2012, and 2015 (NETR 2019b).

The first topographic map showing the proposed Project APE dates to 1903 and shows the proposed Project APE as largely undeveloped land, though there are a few roads indicated in the vicinity of what would become De Soto Avenue. The Southern Pacific Railroad is present to the west of the project APE. Little changes until the 1928 map, which shows more road development and an increased number of buildings although no distinct subdivision planning. Devonshire, Lassen, Parthenia, Roscoe, De Soto, and Mason streets are present.

By 1941, residential development increased along De Soto Avenue between Roscoe and Nordhoff and between Lassen and Devonshire. Development also increased along Devonshire and along Mason south of Roscoe. Concomitant with the expansion of World War II, the 1944 topographic map shows a marked increase in development of the immediate area, specifically along De Soto, Mason, and Devonshire streets.

The growth trend continued for the next two decades, with another surge in the mid-1960s as indicated by the extensive development observed between the 1966 and 1968 topographic maps. In 1968, the area appears predominately developed, maturing as a suburb of Los Angeles, with a limited number of undeveloped parcels typically along the Southern Pacific Railroad tracks. By 2012, the area is fully developed, with even the larger parcels along the railroad tracks being subdivided into ¼ and ⅛ sections.

The first aerial depicting the proposed Project APE dates to 1947 and shows the area as predominately agricultural lands with crops and groves; a small development of parcels with buildings ranging approximately between 10-20 acres exists near what would later become the intersection of De Soto Avenue and Roscoe Boulevard. A decade later, the 1959 aerial shows the small development contains more buildings and that several sections of land east of the development are subdivided for residential use and contain multitudes of buildings. Similar subdivision and growth is observed northwards along the project APE, with the percentage of agricultural land to developed land approximating 60% to 40%. The suburban growth trend continues, such that the 1967 aerial presents approximately 30% agricultural land to 70% developed land. By 1980, the aerial shows a fully developed area with residential, commercial, and light industrial properties.

5.4 Native American Correspondence

NAHC Sacred Lands File Search

Dudek contacted the NAHC on August 20, 2019, and requested a review of the SLF. The NAHC replied via email on September 16, 2019, stating that the SLF search was completed with negative results. Because the SLF search does not include an exhaustive list of Native American cultural resources, the NAHC suggested contacting 17 Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the proposed Project APE. On October 7, 2019, Dudek contacted all groups and/or individuals identified by the NAHC. On November 1, 2019 and November 8, 2019, Dudek followed-up with NAHC contacts who did not respond to the initial inquiry letters. In total, Dudek has received nine responses to the inquiry letters to date. Table 3, below, provides a summary of the outreach efforts and the individual responses to the inquiry letters. Should additional responses be received, Dudek will notify LADWP and integrate these responses into the study. Documentation of Dudek's coordination with Native American groups and/or individuals is provided in Appendix C.

This outreach was conducted for informational purposes only and did not constitute formal government-to-government consultation as specified by AB 52. However, Dudek received requests for consultation with the lead agency within responses to the inquiry letters from two individuals: Andrew Salas, Chairperson of the Gabrieleno Band of Mission Indians – Kizh Nation and Jairo Avila, Tribal Historic Cultural Preservation Officer for the Fernandeño Tataviam Band of Mission Indians. Dudek forwarded these requests for consultation to LADWP. LADWP replied to Mr. Avila and Mr. Salas to discuss the Project, and consultation is ongoing. LADWP's AB 52 consultation effort is discussed further below.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Julie Tumamait-Stenslie, Chairperson Barbareno/Ventureno Band of Mission Indians	None	Chairperson Tumamait-Stenslie stated that the Project is not within her Tribal territory, and therefore, she does not have a comment on the Project.	—
Eleanor Arrellanes Barbareno/Ventureno Band of Mission Indians	None	Dudek left a voicemail for Ms. Arrellanes requesting she contact Dudek should she have any comments related to the Project.	Dudek left a voicemail for Ms. Arrellanes requesting she contact Dudek should she have any comments related to the Project. The NAHC supplied contact information did not include an email for Ms. Arrellanes. Dudek was unable to reach Ms. Arrellanes for comment.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Raudel Banuelos Barbareno/Ventureno Band of Mission Indians	None	Dudek left a voicemail for Mr. Banuelos requesting he contact Dudek should he have any comments related to the Project.	Dudek left a voicemail for Mr. Banuelos requesting he contact Dudek should he have any comments related to the Project. The NAHC supplied contact information did not include an email for Mr. Banuelos. Dudek was unable to reach Mr. Banuelos for comment.
Patrick Tumamait Barbareno/Ventureno Band of Mission Indians	Mr. Tumamait responded via voicemail on 10/10/2019. Mr. Tumamait does not have any project related concerns, but asked to be notified should Native American cultural resources be found.	—	—
Julio Quair, Chairperson Chumash Council of Bakersfield	None	Dudek attempted to leave a voicemail for Chairperson Quair; however, his voicemail box was full.	Dudek attempted to leave a voicemail for Chairperson Quair; however, his voicemail box was full. Dudek sent a follow-up email to Chairperson Quair on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should he have any Project related concerns. Dudek has received no response to date.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Gino Altamirano, Chairperson Coastal Band of the Chumash Nation	None	—	The NAHC supplied contact information did not include a phone number for Chairperson Altamirano. In lieu of a phone call, Dudek sent a follow-up email to Chairperson Altamirano on November 8, 2019. The email included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should he have any comments related to the Project. Dudek has received no response to date.
Jairo Avila, Tribal Historic Cultural Preservation Officer Fernandeño Tataviam Band of Mission Indians	Mr. Avila responded via voicemail on 10/10/2019. Mr. Avila wishes to discuss the Project and inquired about consultation. Dudek forwarded Mr. Avila's response to the lead agency.	—	—

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Andrew Salas, Chairperson Gabrieleno Band of Mission Indians – Kizh Nation	Chairperson Salas responded via email on 10/15/2019 in which he requested consultation with the lead agency. Chairperson Salas stated that the Project is within the Tribe's ancestral territory. Chairperson Salas did not provide specific information or concerns about potential impacts to cultural resources or sacred sites, stating that the Tribe does not share tribal information with third party businesses. Dudek forwarded Chairperson Salas' request for consultation to the lead agency.	—	—
Anthony Morales, Chairperson Gabrieleno/Tongva San Gabriel Band of Mission Indians	None	Chairperson Morales stated that based on oral histories, the Project site should be treated as sensitive as the area was a heavily traveled route. Chairperson Morales requested that a Native American monitor and archaeological monitor be present during ground disturbing activities. Furthermore, Chairperson Morales requested that the Gabrieleno/Tongva San Gabriel Band of Mission Indians conduct the Native American monitoring.	—

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Sandonne Goad, Chairperson Gabrielino/Tongva Nation	None	Dudek left a voicemail for Chairperson Goad requesting she contact Dudek should she have any comments related to the Project.	Dudek left a voicemail for Chairperson Goad requesting she contact Dudek should she have any comments related to the Project. Additionally, Dudek sent a follow-up email to Chairperson Goad on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should she have any Project related concerns. Dudek has received no response to date.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Robert Dorame, Chairperson Gabrielino Tongva Indians of California Tribal Council	None	Dudek left a voicemail for Chairperson Dorame requesting he contact Dudek should he have any comments related to the Project.	Chairperson Dorame requested that Dudek resend Dudek's Tribal Outreach letter as he would like to review his Tribal records for any cultural resources within the vicinity of the Project that may not have been reported to the NAHC or CHRIS. Furthermore, Chairperson Dorame requested notification if any cultural resources that pertain to the Gabrielino Tongva are uncovered during project implementation. Dudek sent a follow-up email to Chairperson Dorame on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should she have any Project related concerns. Dudek has received no response to date.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Charles Alvarez Gabrielino-Tongva Tribe	None	Dudek left a voicemail for Mr. Alvarez requesting he contact Dudek should he have any comments related to the Project.	Dudek left a voicemail for Mr. Alvarez requesting he contact Dudek should he have any comments related to the Project. Additionally, Dudek sent a follow-up email to Mr. Alvarez on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should he have any Project related concerns. Dudek has received no response to date.
Fred Collins, Spokesperson Northern Chumash Tribal Council	None	Dudek left a voicemail for Mr. Collins requesting he contact Dudek should he have any comments related to the Project.	Dudek left a voicemail for Mr. Collins requesting he contact Dudek should he have any comments related to the Project. Additionally, Dudek sent a follow-up email to Mr. Collins on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should he have any Project related concerns. Dudek has received no response to date.
Donna Yocum, Chairperson San Fernando Band of Mission Indians	None	Chairperson Yocum stated that she defers to the Gabrielino Tribe.	—

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Mark Vigil, Chief San Luis Obispo County Chumash Council	None	Dudek called the phone number provided by the NAHC for Chief Vigil and received a recording that the phone number was no longer in service.	Dudek called the phone number provided by the NAHC for Chief Vigil and received a recording that the phone number was no longer in service. The NAHC supplied contact information did not include an email for Chief Vigil. Dudek was unable to reach Chief Vigil for comment.

Table 3. Native American Heritage Commission-Listed Native American Contacts

Native American Tribal Representatives	Response to Initial Tribal Outreach Letters Sent October 7, 2019 via Certified Mail	Response to Follow-up Phone Calls Placed on November 1, 2019	Response to Follow-Up Phone Calls Placed on November 8, 2019
Kenneth Kahn, Chairperson Santa Ynez Band of Chumash Indians	None	Dudek called the phone number provided by the NAHC for Chairperson Kahn. Dudek was informed that the person to speak with in regards to the Project was Willie Wyatt. Dudek was transferred to Mr. Wyatt and reached his voicemail. Dudek left a voicemail requesting Mr. Wyatt contact Dudek should he have any comments related to the Project.	Dudek called the phone number provided by the NAHC for Chairperson Kahn. Dudek was again informed that the person to speak with in regards to the Project was Willie Wyatt. Dudek was transferred to Mr. Wyatt and reached his voicemail. Dudek left a voicemail requesting Mr. Wyatt contact Dudek should he have any comments related to the Project. Dudek sent an email to Chairperson Kahn on November 8, 2019, which included a copy of Dudek's Tribal Outreach letter and a request to contact Dudek should he have any Project related concerns. On November 14, 2019, Dudek received a phone call from Freddie Romero, Santa Ynez Band of Chumash Indians, in response to voicemails Dudek left for Mr. Wyatt. Mr. Romero stated that he has no comment on the Project and defers to the local tribes.
Mona Tucker, Chairperson Yak tityu tityu yak tilhini – Northern Chumash Tribe	None	Chairperson Tucker stated that the Project is not within her Tribal homeland. She recommended Dudek reach out to the indigenous tribes within the area of the Project.	—

Assembly Bill 52 Consultation

The proposed Project is subject to compliance with AB 52 (PRC 21074), which requires consideration of impacts to TCRs as part of the CEQA process, and that the lead agency notify California Native American Tribal representatives (that have requested notification) who are traditionally or culturally affiliated with the geographic area of the proposed Project. LADWP sent consultation letters to the applicable NAHC-listed California Native American tribes on September 20, 2019. The letters contained a project description, outline of AB 52 timing, request for consultation, and contact information for the appropriate lead agency representative. Documents related to AB 52 consultation are on file with LADWP.

6 CULTURAL RESOURCES SURVEY

The project APE was subject to a windshield survey on October 5, 2019. Because the APE falls entirely within the roadbed, an intensive pedestrian survey of the APE was not possible or necessary. No historical resources/historic properties were identified within the APE as a result of the windshield survey or photograph research. Numerous historic-age buildings were identified adjacent to the APE. No visual impacts were identified that would result from the proposed project. However, the close proximity of historic-age buildings warranted consideration of adverse effects resulting from groundborne vibration from construction equipment (see Section 7).

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7 PROJECT EFFECTS/IMPACTS ASSESSMENT

7.1 Potential Direct Effects/Impacts

No historic properties under Section 106 of the NHPA, and no historical resources under CEQA were identified within the APE as a result of the records search, Native American coordination, background research, or reconnaissance-level survey. Therefore, the project would have no adverse effects on historic properties, and would have a less than significant impact on historical resources.

7.2 Potential Indirect Effects/Impacts

Each element of the proposed project was also assessed for its potential to indirectly impact adjacent residential and commercial buildings, many of which are over 50 years old and are in close proximity to proposed project activities. Because all project work will be completed below ground, no permanent visual impacts were identified. However, it is necessary to consider potential indirect impacts resulting from groundborne vibrations due to construction equipment which will be operated in close proximity to historic-age buildings. Indirect impacts were assessed for the entire length of the APE and consider the effects of both open trench and pipe-jacking construction methods on adjacent buildings.

Caltrans has established thresholds, related to the Peak Particle Velocity (PPV), for groundborne construction vibration that take into account the type of building or structures near the vibration source. For the age and condition of the historic-era buildings on parcels adjacent to the proposed alignment, a damage threshold of 0.2 PPV inches per second (in/sec) for transient sources and 0.1 PPV (in/sec) for continuous or frequent intermittent sources is appropriate (Caltrans 2013).

Open Trench Excavation Segments

The majority of the pipeline would be installed using traditional open-trench techniques. While the various pieces of proposed equipment produce groundborne vibration to varying degrees, the use of large vibratory compactors or pile drivers can produce vibrations that exceed the damage threshold for historic-era buildings. The proposed construction equipment would not include such pieces of equipment. Additionally, the vibration that is produced during construction would be intermittent and transient. For these reasons, groundborne vibration from the open-trench sections poses no risk to historic-era buildings.

Pipe Jacking Segments

Pipe jacking installation would be used for pipe installation under the intersection of Devonshire Street and Mason Avenue; under Mason Avenue from approximately 200 feet north to about 100 feet south of the Lassen Street intersection; under Mason Avenue approximately 200 feet on either side of the Union Pacific Railroad tracks; under the intersection of Nordhoff Street and Mason Avenue; and under Browns Creek Channel in the 20800 block of Roscoe Boulevard, as well as under the intersection of De Soto Avenue and

Victory Boulevard. Groundborne vibration from pipe jacking is dependent largely on the subsurface geology around the pipe, with dense rock (like granite or basalt) or faults generating the greatest amount of groundborne vibrations. The geologic map of the Oat Mountain and North ½ Canoga Park Quadrangles indicates the pipeline will pass through Quaternary alluvium of "alluvial gravel, sand, and clay of valley and flood plain areas" (Dibblee 1992). There is also the possibility of encountering artificial fill from construction of roads and concrete-lined waterways. The shallow location of the proposed pipeline and the likelihood of tunneling through alluvium would not result in groundborne vibrations reaching the damage threshold. Should artificial fill be encountered, the possibility of hitting a denser material (like concrete remnants) may result in a temporary increase in PPV that could briefly exceed the damage threshold; however, given the proximity of historic-era buildings to highly-trafficked roads and the railroad, the possibility of damage from construction-related groundborne vibration is negligible and any potential impact would be less than significant.

7.3 Summary of Potential Project Effects/Impacts

No historic properties under Section 106 of the NHPA, and no historical resources under CEQA were identified within the APE as a result of the CHRIS records search, Native American coordination, background research, or reconnaissance-level survey. Further, a groundborne vibration assessment of all proposed construction methods and associated equipment revealed that there is no risk to potential adjacent resources from proposed project activities. Nor are there any project components that would result in a visual intrusion to potential adjacent resources. Therefore, the proposed project would have no adverse effects on historic properties under Section 106 of the NHPA, and would have a less than significant impact on historical resources under CEQA.

8 RESULTS AND RECOMMENDATIONS

8.1 Results Summary

No historic properties/historical or archaeological resources were identified within the APE as a result of the CHRIS records search, Native American coordination, and reconnaissance-level survey. Further, a review of potential indirect groundborne vibration impacts to adjacent historic-age buildings indicates that the proposed Project will not adversely affect any adjacent buildings or structures.

Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, assess the effects, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1[a]). No historic properties have been identified within the proposed Project APE. Therefore, no known historic properties would be affected by the proposed undertaking. As a result, a finding of "No Historic Properties Affected" is recommended for the proposed undertaking.

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC section 21084.1; CEQA Guidelines section 15064.5(b)). No historical resources were identified within the Project APE. Therefore, no known historical resources will be impacted by the proposed Project.

While no surface evidence of historical or archaeological resources was identified as a result of this study, it is possible that subsurface resources could be encountered/impacted by ground disturbing activities associated with the Project. Recommendations to reduce effects/impacts to undiscovered, subsurface cultural resources are provided below.

8.2 Recommendations

In consideration of the cultural resources investigation, impacts to archaeological and historical resources would be less-than-significant. No new cultural resources were identified within the proposed Project APE as a result of this study; therefore, no further management recommendations are necessary beyond standard protection measures to address unanticipated discoveries of cultural resources and human remains (listed below).

8.2.1 Unanticipated Discovery of Cultural Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA or Section 106 of the NHPA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

8.2.2 Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the remains are determined to be Native American, the Coroner shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the MLD from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The MLD would then determine, in consultation with the property owner, the disposition of the human remains.

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APPENDIX A

Preparer's Qualifications

Kara R. Dotter, MSHP

Senior Historic Preservation Specialist and Architectural Historian

Education

Queen's University of Belfast
PhD Candidate (ABD)

University of Texas, Austin

MS, Geological Sciences, 2006
MS, Historic Preservation, 2004

University of Houston
BS, Geology, 1996

Certifications

CEQA Practice Certificate (in progress)

Professional Affiliations

Association for Preservation Technology

Construction History Society of America

American Institute of Conservation

Society of Architectural Historians

California Preservation Foundation

Kara Dotter is a senior historic preservation specialist with more than 15 years of experience in historic preservation and architectural conservation. Her historic preservation experience spans all elements of cultural resources management, including project management, intensive- and reconnaissance-level field investigations, architectural history studies, and historical significance evaluations in consideration of the National Register of Historic Places (NRHP), California Register of Historical Places (CRHR), and local-level designation criteria, in addition to architectural conservation work.

Ms. Dotter's background in geology informs many aspects of her architectural conservation work, including insight into the deterioration of building materials over time, which helps inform preservation strategies for various types of construction materials. She has experience with a variety of materials, in particular stone, brick, mortar, and concrete. Her materials analysis skills include petrographic analysis of stone, mortar, and concrete; paint analysis; wood species identification; and applicable American Society for Testing and Materials standards, as well as proficiency with Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS), back-scattered electron imagery (BSE), atomic absorption spectrometry (AAS), differential thermal analysis (DTA), X-ray diffraction (XRD), and ion chromatography techniques.

Ms. Dotter exceeds the Secretary of the Interior's Professional Qualification Standards for Architectural History. She is experienced managing multidisciplinary projects in the lines of land development, state and local government, and the private sector. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). She also prepared numerous Historic Architectural Survey Reports (HASRs) and Findings of Effect (FOE) reports for the California High-Speed Rail Authority.

Select Project Experience

Development

Environmental Services for the Salt Bay Design District, San Diego and Chula Vista, California (2018). Dudek was retained by Gonzalez, Quintana & Hunter, LLC, to provide Cultural and Historical Resources Inventory in support of preparation of an environmental impact report (EIR) for the Salt Bay Design District Project that involves developing 46.6 acres at the southern end of the San Diego Bay as an industrial development. The work includes a CHRIS records search; a paleontological resources records search from the San Diego County Museum of Natural History; Native American Coordination; a cultural and historical resources survey; archival research; evaluation of potential historical resources for the NRHP, CRHR, and local eligibility criteria and integrity requirements; documentation on DPR forms; and preparation of both an Archaeological Resources Report and Historical Resources Technical Report. Ms. Dotter is the Cultural Resources project lead, as well as architectural historian and author of the Historical Resources Technical Report. Ms. Dotter's contributions include architectural history field surveys; conducting archival research; recording and evaluating historical resources in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

North River Farms Historical Resources Technical Report, Integral Communities, Oceanside, California (2018). Served as architectural historian and author of the Historical Resources Technical Report. The project proposed to develop approximately 175 acres of land east of Oceanside as a small farming community. Contributions included architectural history field surveys; conducting archival research; recording and evaluating historical resources in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

Montebello North Historic Evaluation, A.P.T.S. Inc., La Mesa, California (2018). Served as architectural historian and author of the Cultural Resources Technical Report. Conducted research into the history of the area and its relation to the 4.16 acre subject property, documented existing conditions, and liaised with the City of La Mesa Planning Department to bring about a successful result for the client.

HABS Written Documentation for Camp Haan, Riverside County, California (2017). Dudek was retained by the County of Riverside Economic Development Agency (EDA) to prepare HABS documentation for approximately 28 building foundations associated with the Camp Haan property located on March Air Reserve Base. Ms. Dotter conducted the site survey; worked with the HABS photographer; conducted archival research; and prepared the HABS documentation and submittal package.

Village Three Active Recreation Area Constraints Analysis, HomeFed Otay Land II LLC, Chula Vista, California (2017). Ms. Dotter served as Cultural Resources project lead for the Constraints Analysis, as well as architectural historian and author of the Historical Resources Technical Report. The project proposed to develop approximately 100 acres of land south of the Otay River as an active recreation site. Ms. Dotter's contributions include architectural history field surveys; conducting archival research; recording and evaluating historical resources in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

Santa Monica/Orange Grove Mixed-Use Development, 7811 Santa Monica Blvd., West Hollywood, California (2017). Dudek was retained by the City of West Hollywood to prepare an Environmental Impact Report (EIR) for the Santa Monica/Orange Grove Mixed-Use Development Project. In support of the EIR, Dudek conducted a cultural resources inventory and evaluation of two commercial properties at 7811 Santa Monica Blvd. and 1125-1127 N. Ogden Drive. Both properties were found not eligible for designation under NRHP, CRHR and local designation criteria. Ms. Dotter co-authored of the Historical Resources Technical Report, documenting existing conditions and conducting research into the history of the area and its relation to the three-parcel property in question.

Reliable Pipe Supply Phase II, LLJ Ventures LLC, San Diego, California (2017). Dudek was to complete an Historical Resources Technical Report for the property located at 1430 National Avenue, San Diego, California, which was assessed for the potential of mixed-use redevelopment. Ms. Dotter served a Cultural Resources project manager and was lead author on the HRTR, in addition to performing archival research, conducting an intensive site survey, and recording and evaluating historical resources in consideration of CRHR, and local designation criteria and integrity requirements.

Education

Fullerton College Facilities Master Plan Program EIR, North Orange County Community College District, City of Fullerton, Orange County, California (in progress). The North Orange County Community College District (NOCCCD) is undertaking a comprehensive improvement and building program to make upgrades and repairs to existing buildings, as well as to construct new facilities to improve the safety and education experience of those attending Fullerton College. The College proposed to implement the Facilities Master Plan to more effectively meet the space needs of the projected on-campus enrollment through the next decade and beyond, while constructing and renovating facilities to meet the District's instructional needs. Ms. Dotter co-authored the cultural resources study. All buildings and structures on campus over 45 years old and/or proposed for demolition/substantial alteration as part of the proposed project were photographed, researched, and evaluated in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA. As a result of the significance evaluation, three historic districts and one individually eligible building were identified within the project area. The study also entailed conducting extensive archival and building development research, a records search, Native American coordination, detailed impacts assessment, and development of mitigation measures for project conformance with the Secretary of the Interior's Standards for Rehabilitation.

SDSU West Campus Project EIR, San Diego, California (in progress). Dudek was retained by the San Diego State University (SDSU) to conduct an Initial Study and EIR for the proposed West Campus expansion project located in San Diego, California. Part of the work includes evaluating potential impacts to historical resources located on the project site, which include the SDCCU Stadium, originally known as the San Diego Stadium. The historic resources report provides the results of that evaluation, as well as an impacts analysis and recommended mitigation measures. Ms. Dotter conducted the site survey and archival research, and authored the Historical Resources Technical Report.

Morse High School Historical Resources Technical Report, San Diego Unified School District (SDUSD), San Diego, California (2019). SDUSD is undertaking modernization of the Morse High School campus. Served as architectural historian and lead author of the historical resources technical report. Recorded and evaluated the Morse High School campus for NRHP, CRHR, and local level criteria and integrity considerations. The study also entailed conducting archival and building development research and a records search.

SDSU Aztec Recreation Center, San Diego State University, San Diego, California (2018). SDSU is embarking on the expansion and rehabilitation of the existing Aztec Recreation Center. The project area is adjacent to two historical resources. Ms. Dotter served as architectural historian and lead author of the historical resources technical report, documented the existing conditions of the two historical resources, conducted a detailed impacts assessment, and developed appropriate mitigation measures. The study also entailed conducting archival and building development research and a records search.

MiraCosta Community College District Oceanside Campus, San Diego County, California (2017). Dudek was retained by the MiraCosta Community College District (MCCCD) to conduct a cultural resources study for the proposed Oceanside Campus Facilities Master Plan. Of the original 11 buildings constructed in the early 1960s, nine are still extant and required evaluation for historical significance. The campus was ultimately found ineligible for designation due to a lack of important historical associations and integrity issues. Ms. Dotter conducted the site survey and archival research; evaluated significance for NRHP, CRHR, and local listing, as well as potential impacts under CEQA; and authored the Historical Resources Technical Report.

SDSU Tula Pavilion and Tenochca Hall Renewal/Refresh, San Diego, California (2017). Dudek was retained by the San Diego State University (SDSU) to evaluate potential impacts to historical resources associated with the proposed Tula Pavilion and Tenochca Hall Renewal/Refresh project located in San Diego, California. The historic resources technical memorandum provides the results of that evaluation. Ms. Dotter conducted the site survey and archival research, and authored the memorandum.

Energy

Jacumba Valley Solar Project, San Diego County, California (2018). The project proposes a 100 megawatt solar farm that included photovoltaic solar panels, a 1,500-volt DC underground collection system, a 34.5 kilovolt overhead and underground collection system, and a 20 megawatt energy storage facility, among other features. Served as architectural historian and lead author of the historical resources constraints analysis to comply with CEQA and in preparation of technical studies conducted for the Environmental Impact Report. The constraints analysis identified one potential historical resource, the remains of a substantial early 20th century dairy operation, and recommended a full Historical Resources Evaluation Report of the property in compliance with CEQA.

Municipal

Undergrounding Utility Project, City of San Diego, San Diego, California (in progress). Dudek was retained by the City of San Diego to complete an analysis of potential impacts to historical resources for a project that will transition utilities services to underground. The project covers the majority of the City of San Diego, and consists of over 800 discrete project alignments. The project area contains over 1,300 individual historic properties and passes through 17 current or proposed historic districts. Work includes conducting a records search, assessing potential impacts, and providing mitigation recommendations.

LADWP West Los Angeles District Yard Project, City of Los Angeles, Los Angeles County, California (2017). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes demolition of five LADWP-owned administrative buildings and warehouses at the West Los Angeles District Headquarters located at 12300 West Nebraska Avenue. Dudek evaluated the yard for historical significance in consideration of NRHP, CRHR, and City of Los Angeles HCM criteria and integrity requirements. Ms. Dotter co-authored the resource descriptions and provided QA/QC of the cultural resources report.

State of California

Judicial Council of California Historical Resource Evaluation Report for the Santa Monica Courthouse, City of Santa Monica, Los Angeles County, California (2017). Dudek was retained by the Judicial Council of California (JCC) to prepare an evaluation of the Santa Monica Courthouse building, located at 1725 Main Street in the City of Santa Monica, California. To comply with Public Resources Code Section 5024(b), the JCC must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under the JCC's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or registered or that may be eligible for registration as a California Historical Landmark (CHL). The Santa Monica Courthouse was found not eligible for designation under all applicable criteria. Ms. Dotter co-authored the cultural resources report, in addition to conducting the site survey, performing archival research, and evaluating the property for designation under NRHP, CRHR, and local eligibility criteria.

Department of General Services Historical Resource Evaluation for the Normal Street Department of Motor Vehicles Site at 3960 Normal Street, San Diego, California (2017). Dudek was retained by the State of California Department of General Services to complete a Historical Resources Technical Report for a project that proposes demolition and replacement of the Department of Motor Vehicles (DMV) building located at 3960 Normal Street in the City of San Diego. To comply with Public Resources Code Section 5024(b), DGS must submit to the State

Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under DGS's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or that may be eligible for registration as a California Historical Landmark (CHL). The DMV was found not eligible. Ms. Dotter authored the Historical Resources Technical Report, as well as recording and evaluating the Normal Street DMV building for Federal, State, and local level criteria and integrity considerations, completion of DPR forms, and responding to SHPO comments.

Department of General Services Historical Resource Evaluation for the Santa Barbara Armory Complex, City of Santa Barbara, California (2017). Ms. Dotter served as architectural historian and lead author of the update to state and local designations. The work involved historical resources documentation in order to comply with NEPA and CEQA regulations relating to the potential sale of the property. Ms. Dotter's contributions included updating documentation relating to the Santa Barbara Armory individual designation, as well as recording and evaluating the Santa Barbara Armory complex as a historic district for NRHP, CRHR, and local level criteria and integrity considerations; completion of DPR forms; and responding to SHPO comments.

Transportation

Environmental Preconstruction Services for Construction Package 2 and 3, California High-Speed Rail Authority, Fresno to Bakersfield Section, California (in progress). Ms. Dotter is the project lead for the Built Environment component of the environmental preconstruction services. The work involves conducting cultural resources assessments for a proposed 65-mile-long segment of the Fresno to Bakersfield high-speed rail alignment as directed by the California High-Speed Rail Authority and Federal Transit Administration (FTA) in order to comply with NEPA and CEQA regulations. Ms. Dotter's contributions include architectural history field surveys; documenting and updating the CRHR-designated 7,040-acre Washington Irrigated Colony Rural Historic Landscape; completion of over 150 California Department of Parks and Recreation (DPR) forms for the evaluation of built environment resources; conducting research for and producing HASRs and supplemental Findings of Effect (sFOEs); development of Protection and Stabilization Plans and Response Plans for Unanticipated Effects and Unintended Damage; and managing structural and vibration engineering consultants.

Environmental Compliance Services for the Caltrain Modernization (Calmod) Peninsula Corridor Electrification Project (PCEP) (in progress). Ms. Dotter is the project lead for the Built Environment component of the environmental compliance services. The work involves cultural resources documentation in order to comply with NEPA and CEQA regulations relating to the electrification and increased capacity of the Caltrain Corridor from San Francisco's 4th and King Caltrain Station to approximately the Tamien Caltrain Station. Ms. Dotter's contributions include architectural history field surveys; managing subconsultants; conducting research for and producing documentation to HABS level III standards; and reviewing design plans and equipment placement for conformance with the Secretary of the Interior Standards for Rehabilitation.

Keller Road/I-215 Interchange Project, Jacobs Engineering, Murrieta, California (in progress). The City of Murrieta, in cooperation with Caltrans District 8, the County of Riverside, the City of Menifee, and the FHWA, proposed a new full interchange and auxiliary lanes at I-215 and Keller Road. The project includes construction of northbound (NB) and southbound (SB) on- and off-ramps for accessing I-215 from the existing Keller Road undercrossing, as well as construction of auxiliary lanes in the NB and SB direction of I-215 and removal and/or addition of adjacent surface streets to improve circulation. The project required compliance with NEPA Section 106, NHPA, and CEQA regulations for Cultural Resources, including archaeological, historical, and paleontological resources. Ms. Dotter served as the Cultural Resources project manager, co-authored the HRER and HPSR reports, developed the APE in coordination with Caltrans, conducted archival research, performed an intensive survey of the project area, and provided QA/QC for the HRER, HPSR, and ASR.

Historical Resources Evaluation Report for the Imperial Avenue Bikeway, Kimley-Horn and Associates, Inc., San Diego, California (in progress). The SANDAG project proposed approximately four miles of roadway improvements, including sidewalks and bicycle lanes, along Imperial Avenue roughly between I-5 and I-805. Served as principal architectural historian and lead author on the Historical Resources Evaluation Report, that entailed identification of historic properties/historical resources within and adjacent to the project alignment; intensive site surveys; a records search; identification of existing and potential historical properties/historical resources; updating DPRs; determinations of effect; and management recommendations. The project qualified for a Categorical Exemption under CEQA and was determined to have no effect on historic properties under Section 106.

Historical Resources Assessment for the SFO Residential Sound Insulation Program, Cities of San Bruno and Millbrae, San Mateo County, California (2017). Dudek was retained by San Francisco International Airport (SFO) to evaluate 28 residential properties constructed 50 years ago or more within the cities of San Bruno and Millbrae, in San Mateo County, California. These properties are proposed to receive installation of sound insulation materials as part of SFO's Residential Sound Insulation Program. All 28 properties were recorded and evaluated on State of California Department of Parks and Recreation Series 523 Forms for historical significance in consideration of NRHP designation criteria and integrity requirements. Ms. Dotter co-authored the technical report and DPR forms for the evaluation of built environment resources.

Water/Wastewater

Historical Resources Evaluation of Public Utilities Department Reservoir Structures, City of San Diego, California (in progress). The project proposes upgrades to ten historic-era dams, an historic-era flume, and various attendant structures, within the San Diego water supply network. Serving as architectural historian and co-author of a multiple-property historical resources evaluation report. Project includes development of a network-wide historical context, as well as contexts for each individual contributor; multiple intensive field surveys; extensive archival research; recordation and evaluation of the properties in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA; proposal of appropriate mitigation measures; and review for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Municipal Waterways Maintenance Plan, City of San Diego, San Diego County, California (in progress). Dudek was retained by the City of San Diego and the Bureau of Reclamation to initiate the processing of a joint EIR and EIS. The proposed WMP is intended to establish an effective and streamlined program that allows for waterway facilities (channels, ditches, sumps) to be maintained, while minimizing impacts and potential adverse effects of maintenance. The proposed WMP will outline specific activities, maintenance methods, and procedures that will guide future maintenance and repair activities. Ms. Dotter is the lead author of the Historical Resources Inventory and Analysis Report, conducting archival research; identifying potential historical resources; and analyzing the proposed WMP maintenance activities to determine their potential to impact historical resources.

Crowther Sewer Pipeline Project, City of Placentia, Orange County, California (in progress). The City of Placentia proposes to upsize the existing sewer pipeline under Crowther Avenue, Placentia Avenue, and Orangethorpe Avenue by constructing a completely independent pipeline parallel to the existing pipeline, which would be capped and left in place once the new pipeline is completed. Ms. Dotter served as the Cultural Resources project manager, co-authored the HRCR, conducted archival research, and performed a reconnaissance survey of the proposed route.

North County Pure Water Project, City of San Diego, California (2018). Ms. Dotter is the architectural historian and lead author of the Historical Resource Technical Report for the proposed pipeline route as part of the EIR/EIS. Preparation of the report involved conducting extensive building development and archival research on historic-era structures along the proposed 56-mile-long route, development of related historic contexts, historical significance evaluations for each historic-era structure in consideration of local, state, and national designation criteria and integrity requirements, and determining appropriate mitigation measures, in addition to responding to comments on the EIR/EIS from the public.

Historical Resource Evaluation Report for the San Dieguito Dam, Santa Fe irrigation District, Rancho Santa Fe, California (2016). Ms. Dotter served as architectural historian and lead author of the Historical Resource Evaluation Report for the proposed handrail replacement project. Preparation of the report involved conducting extensive engineering development and archival research on dams, development of an historic context, and historical significance evaluation for the historic-era structure in consideration of local, state, and national designation criteria and integrity requirements.

Specialized Training

- State-of-the-Art Masonry Cleaning Workshop, 2019. Association for Preservation Technology (APT).
- Macro vs. Micro: Hands-on with Documentation Tools, 2018. California Preservation Foundation (CPF).
- Terra Cotta Restoration Workshop, 2018. APT.
- Digital Tools for Documentation and Simulation in Conservation of Historic Buildings, 2017. APT.
- Tips and Tools for Environmental Review: Mastering the CEQA Process for Historic Properties in the Bay Area, 2016. CPF.
- Section 106: An Introduction, 2015. National Preservation Institute (NPI).
- Wood Identification Workshop, 2010. Institute of Conservator-Restorers in Ireland (IPCRA).
- Crafts and Trades Workshop, 2008. APT.
- Salts in Traditional Masonry Buildings, 2008. Scottish Lime Centre, Scotland.
- Introduction to Lime, 2007. Calch Ty-Mawr, Wales.
- Introduction to Microscopical Identification of Conservation Materials, 2006. McCrone Group.

Linda Kry

Archaeologist

Linda Kry is an archaeologist with 12 years experience in cultural resource management specializing in various aspects of cultural resources investigations. Ms. Kry's experience includes archival research, reconnaissance surveys, archaeological excavations, artifact analysis, and authoring technical reports pursuant to the California Environmental Quality Act and Section 106 of the National Historic Preservation Act.

Education

University of California, Los Angeles
BA, Anthropology, 2006
Cerritos College
AA, Anthropology, 2004

Project Experience

San Jacinto II Wind Energy Repowering Project, Terra-Gen, LLC, Palm Springs, California. The project involves the decommissioning of approximately 126 existing wind turbines and the construction and operation of up to seven new wind turbines on private lands under the jurisdiction of the City of Palm Springs and on federal lands administered by the Bureau of Land Management. Responsibilities as technical lead include the management of a Phase I cultural resources study in compliance with the provisions of local regulations, CEQA, and Section 106 of the National Historic Preservation Act of 1966. (December 2018–Present)

Kaiser Permanente Moreno Valley Medical Center Master Plan, Kaiser Permanente, Moreno Valley, California. Kaiser Permanente is proposing the development of an approximately 400-bed hospital, hospital support buildings, outpatient medical office buildings, a central utility plant, and surface and structured parking within their existing hospital campus through a three-phase plan. The City of Moreno Valley is the lead agency under CEQA. As the technical lead for the project, responsibilities include the management of a Phase I cultural resources study. (November 2018–Present)

City of Colton Modern Pacific 88-DU Residential Project, City of Colton, Colton, California. Technical lead for a Phase I cultural resources study and Extended Phase I subsurface probing effort in accordance with CEQA. The City of Colton is proposing the development of 89-detatched single-family homes on an approximately 41.58-acre site within a single tract. (November 2018–Present)

Protea Memory Care Facility Project, City of San Juan Capistrano, San Juan Capistrano, California. Technical lead for a Phase I cultural resources study in accordance with CEQA and subject to California Assembly Bill 52 and Senate Bill 18, in support of a project that proposes to construct a 59-unit (72-bed) memory care facility. (September 2018–November 2018)

Coronado Trunk Line Project, Los Angeles Department of Water and Power, Los Angeles, California. Technical lead for a Phase I cultural resources study pursuant to CEQA and Section 106. Los Angeles Department of Water and Power is proposing to construct a new 30-inch diameter welded steel pipe, approximately 7,200 feet in length, along with a regulating and relief station vault and flow master vault. The proposed trunk line would add reliability and redundancy to the system. (September 2018–October 2018)

River Supply Conduit Unit 7 Project, Los Angeles Department of Water and Power, Los Angeles and Burbank, California. Technical lead and monitoring coordinator for the River Supply Conduit (RSC) Unit 7 Project. The existing River Supply Conduit (RSC) is a major transmission pipeline in the LADWP water distribution system. The Project is critical to meet safety of water supplies, reliability of water infrastructure, and sustainability of water supply. (August 2018–Present)

Sand Canyon Resort, City of Santa Clarita, Santa Clarita, California. Served as technical lead for a cultural resources study for a project that proposes to develop an abandoned, approximately 75-acre existing open space into a new resort and spa in an effort to become the premiere golf destination in northern Los Angeles County. Tasks include management of the technical study including the archival research, pedestrian survey, and reporting of the study results. Additionally, authored the Cultural and Tribal Cultural Resources chapters for the Environmental Impact Report (August 2018–December 2018)

Creek at Dominguez Hills, Plentitude Holdings LLC, Carson, California. Served as contributing author for the environmental impact report for a development project that consists of approximately 532,500 square feet of buildings, including: a multiuse indoor sports complex; youth learning experience facility; indoor skydiving facility; public golf recreation facility; marketplace; clubhouse; recreation and dining center; a sports wellness center; and restaurants. Alternatively, a specialty grocery store may be developed in place of some of the restaurant uses. (August 2018–December 2018)

Relevant Previous Experience

Amapa Archaeology Project, Amapa, Oaxaca, Mexico. Served as excavator and lab analyst for an archaeological academic research project in the town of Amapa, located in the Mexican state of Oaxaca. Amapa was founded in 1769 by black runaway slaves, who fled sugar plantation slavery in central Veracruz. Using a 1770 plan map and colonial documents, the project focused on excavations around an 18th century church where shallow colonial period deposits were previously encountered in 2017. The fieldwork was conducted in an effort to address research questions regarding the town’s use of architecture and space, and whether the evidence is accurately reflected in the 1770 map. (June–July 2018)

Los Angeles International Airport (LAX) Midfield Satellite Concourse, Los Angeles, California. Served as field director for archaeological and paleontological monitoring project associated with the creation of a new aircraft passenger concourse and associated elements at LAX. Responsibilities included coordinating with company personnel and project contractors, scheduling, and recordation and collection of field data. (April 2017–December 2017)

Los Angeles Metropolitan Transportation Authority Compliance Monitoring, Los Angeles, California. Served as archaeological and paleontological monitor for the multiyear and multisite project within the greater Los Angeles area, including the Crenshaw rail transit corridor and the 1.9-mile Regional Connector subway corridor, as well as their associated stations. In addition, served as monitoring coordinator for the Regional Connector Archaeological and Paleontological Monitoring Project. Responsibilities as Monitoring Coordinator included coordinating and scheduling various contractors and archaeologists; developing and providing cultural resources training for new contractors and archaeologists; monthly project updates to client; invoice and budget reviews; lab analysis of all resources collected and preparation of those resources for curation. (April 2013–January 2018)

Topanga Library, Topanga Canyon, California. Served as crew chief. Involved in multiple facets of archaeological research. Conducted archaeological monitoring during construction of the Topanga Library, which resulted in the discovery of materials associated with a pre-colonial Gabrielino site. Identified and processed cultural and human remains, as well as contributed to report on all findings. (2009–2010)

Los Angeles Department of Water and Power Division Creek, Inyo County, California. Served as deputy project manager providing consultation and support in U.S. Forest Service and Bureau of Land Management consultation for the assessment of historical structures associated with the Division Creek Power Plant and Los Angeles Aqueduct. Responsibilities included assisting with work plans, project permitting, budgeting, and reporting. In addition, served as crew chief for archaeological surveys and testing. Conducted lab analysis of artifacts, prepared these resources for curation, and co-authored reports on the results of all findings. (July 2013–November 2017)

Genesis Solar Energy Project, Blythe, California. Served as archaeological monitor. Monitored the placement of transmission lines, large-scale excavations for the placement of solar panels, and caisson drilling for solar panel footings. Responsibilities also included survey, testing, and artifact collection. Coordinated with the client, archaeologists, Native American monitors, and general contractors. Provided daily updates, reviewed daily archaeological monitoring logs, and collected/stored resources daily. (June 2011–February 2014)

Long Beach Courthouse, City of Long Beach, Long Beach, California. Served as lead archaeological and paleontological monitor during construction of a new courthouse. Duties included providing workers training regarding archaeological and paleontological resources for on-site contractors, documenting historical archaeological features, and coordinating with clients and staff. In addition, conducted excavations of early 20th century features discovered during monitoring. Also served as lab director for the analysis, cataloging and processing artifacts for curation. Co-authored report documenting project results. (2010–2011)

Solar Millennium Blythe Project, Blythe, California. Served as crew chief for archaeological survey of a proposed solar electric facility in the Chuckwalla Valley. Project included survey of the project site and buffer zones, recordation of historical and pre-colonial archaeological sites, and documentation on Department of Parks and Recreation Forms. (June 2009–March 2010)

Central Los Angeles High School No. 9, Los Angeles Unified School District, Los Angeles, California. Served as excavator and lab analyst. Duties included assessing artifact conditions and conservation needs, assisting with development and implementation of artifact cleaning procedures, artifact classification, artifact cataloging using Excel, and the reconstruction of artifacts. Over 3,000 historic-era artifacts were recovered from a 19th-century cemetery. (2006–2009)

Beacon Solar Energy Project, Los Angeles Department of Water and Power, Kern County, California. Archaeological monitoring for the Beacon Solar Energy Project. Monitored excavation for the placement of solar panels. Aspects of the project included monitoring, survey, testing, and artifact collection. Responsibilities included recordation and collection of cultural resources discovered during monitoring and scheduling with Native American and construction crews.

Oasis Solar Field, NRG Solar, Environmental Assessment for the City of Palmdale and the United States Air Force, Palmdale, California. Served as Crew Chief for an archaeological survey. Responsibilities include data collection for historical resources and recordation of field data on Department of Parks and Recreation Forms.

California High Speed Train Project, Fresno, Madera, and Merced Counties, California. Field Archaeologist. Assisted in archaeological survey of parcels for a proposed high-speed train in Central California. The project included an archaeological survey of the project areas of potential effect and buffer zones, the recordation of historic and prehistoric archaeological resources, and recordation of field data on Department of Parks and Recreation Forms.

Adriane Dorrler

As-Needed Archaeologist

Adriane Dorrler is a field archaeologist with more than 14 years' experience in cultural resource management specializing in cultural resource studies with private, state, and federal regulatory agencies including National Historic Preservation Act (NHPA) Sections 106 and 110 and California Environmental Quality Act (CEQA) compliance extending primarily throughout Southern California. Ms. Dorrler has worked directly with Bureau of Land Management, the California Public Utilities Commission, California State Parks, and various military installations including the Marine Corps Air Ground Combat Center at Twentynine Palms, Marine Corps Base (MCB) Camp Pendleton, Naval Base Coronado, and Navy Installation San Clemente Island. She has experience in all aspects of project development from initial research, planning, and development to interpreting and synthesizing data in technical reports. Ms. Dorrler has acted as project manager and field director on complex data recovery programs, managed multiple archaeology laboratories, worked as liaison between Native American tribes and clients, and engaged in education and public outreach programs. In addition to Southern California, Ms. Dorrler has worked as a consulting archaeologist in the southwestern United States, the Mid-Atlantic region, and New England.

Education

University of Oklahoma

BS, Nursing, 2011

Catholic University of America

BA, Anthropology, 2001

Certifications

City of San Diego Certified Archaeology and Paleontology Monitor

City of San Diego Certified Archaeology Crew Chief

Range Safety Training, Camp Pendleton, California

Trimble GPS Mapping System TerraSync Certification

Occupational Safety and Health Administration (OSHA) 10-Hour Construction Safety Training

OSHA 40-Hour Hazardous Waste Operations Worker (HAZWOPER) training

Railroad Safety and Security Training

Registered Nurse

Health and Safety Officer

American Heart Association Pediatric and Adult CPR

Wilderness First Responder

Project Experience

Development

Cannon Road, Caruso Affiliated, City of Carlsbad, San Diego County, California. Served as field director for a cultural resources constraints study of a 203-acre property for a proposed commercial retail center and open space easement in the City of Carlsbad. Conducted an intensive-level cultural resources survey.

Solana Highlands Revitalization, City of Solana Beach, San Diego County, California. Served as staff archaeologist during the preparation of an Environmental Impact Report (EIR) for a proposed 13.4-acre multifamily residential development with usable open space in Solana Beach. Authored Tribal Information Request letters in accordance with CEQA guidelines.

Murrieta 180, City of Murrieta, California. Served as field director for archaeological survey of a 10.9-acre property for a proposed multifamily residential development in Murrieta. Conducted a Phase I cultural resources inventory including a pedestrian survey and records search review of the California Historical Resources Information System.

Homestead South Cultural Resources, Newhall Land and Farming Company, Unincorporated Los Angeles County, California. Served as field director for archaeological survey of approximately 4,000-acre subdivision directly adjacent to the City of Santa Clarita. Conducted an intensive-level cultural resources survey.

Sand Canyon Plaza, JSB Development, City of Santa Clarita, California. Served as staff archaeologist during a Phase I cultural resources inventory for a proposed commercial and residential planning development in Santa Clarita. Performed a records search review of the California Historical Resources Information System.

Newland Sierra, Newland Land Co., San Diego, California. Served as staff archaeologist for the Phase I cultural resources inventory and Phase II significance evaluation of 1,983 acres of a proposed residential development within the North County Metro Subregion. Conducted a pedestrian survey, performed a records search review of the California Historical Resources Information System, and was a contributing author in the technical report.

As-Needed Environmental Planning Consultant Support Services, City of San Diego, California. Served as archaeological and paleontological monitor for underground conduit system installation in the neighborhood of Encanto. Tasks include environmental compliance monitoring.

Open Menu Indefinite Delivery/Indefinite Quantity (IDIQ) Contract for Cultural Resources Related Services, Naval Facilities Engineering Command Southwest (NAVFAC SW), various locations in California, Arizona, Colorado, Nevada, New Mexico, and Utah. Served as project manager, field director, health and safety officer, crew chief, and archaeological monitor and supported the undertakings of NAVFAC SW for new construction, ongoing maintenance, and repair projects by conducting cultural resources oversight for various projects throughout the Naval Southwest Division. Tasks included archaeological surveys, construction monitoring, National Register eligibility evaluations, mitigation programs, geographic information system (GIS) support, cultural resource/base support, and development of cultural/landscape contexts. (Approximate contract value: $3,000,000). Examples of projects include:

- P-1040 – Wire Mountain Road/Vandegrift Boulevard Intersection Improvements, MCB Camp Pendleton, San Diego, California
- P-1014 – Northern Region Tertiary Treatment Plant, MCB Camp Pendleton, San Diego, California
- P-1048 – Upgrades to Electrical Systems and Associated Facilities, MCB Camp Pendleton, San Diego, California
- Wilcox Range – Archaeological Monitoring to Support the Wilcox Range Ditch Drainage Clearance, MCB Camp Pendleton, San Diego, California
- P-310 – Archaeological Monitoring to Support the Small Arms Magazine, Edson Range P-310 Construction, MCB Camp Pendleton, San Diego, California
- San Clemente Island – Site Recording Only of Archaeological Sites on Northern San Clemente Island, San Clemente, California
- Silver Strand Training Complex – National Register Eligibility Determinations for Three Prehistoric Sites, Silver Strand Training Complex South Naval Base, Coronado, California
- Cultural Resource Investigation at CA-SDI-14791, MCB Camp Pendleton, San Diego, California

Cultural Resources Evaluation for Rancho Jamul Estates, Rancho Jamul Estates, San Diego County, California. Served as archaeologist responsible for surveying and testing for 20 historic and prehistoric resources for an approximately 400-acre development project in Jamul, California. Recorded and tested prehistoric and historic resources for significance and eligibility to local and state registers. Assisted in preparation and data analysis of technical report.

Paleontological Monitoring for the Carmel Valley Skate Facility Project, San Diego County, California. Served as paleontological monitor for the 13,500-square-foot facility excavation.

Cultural Resource Mitigation for Robertson Ranch, San Diego County, California. Served as archaeologist responsible for data recovery, controlled grading, and mass grading phases for an approximately 400-acre development project in Carlsbad, California. Assisted in preparation and data analysis of technical report.

Centre City Development Corporation Downtown San Diego Mitigation and Monitoring Reporting Program, Centre City Development Corporation, San Diego, California. Served as field director/archaeology and paleontology monitor for numerous commercial projects in downtown San Diego subject to the Centre City Development Corporation mitigation measures and mitigation monitoring requirements. Examples of projects include:

- The Q Project
- Lofts @ 707 10th Avenue Project
- South Block Lofts Project
- Vista Colina Project
- 6th and Market Project
- Carnation Building/Icon LLC Project
- Electra Project
- Park Terrace Project
- Pointe of View Project
- Vantage Pointe Project
- West Park Project
- Q Street Lofts Project
- The Mark

Paleontological Monitoring for the Glen Abbey Mortuary Project, San Diego County, California. Served as paleontological monitor for utility trenching and construction excavation in Chula Vista, California.

Cultural and Paleontological Resource Monitoring for the Towne Center Industrial Plaza Project, Imperial County, California. Served as archaeological and paleontological monitor for the mass grading and utility trenching of 125 acres of commercial/industrial land in Calexico, California.

Cultural Resource Survey for the Ketchum Ranch Project, San Diego County, California. Served as archaeologist responsible for field survey and eligibility review for prehistoric and historic sites for an approximately 208-acre development project in Jacumba, California.

Cultural Resource Survey for the Yuma Sector Project, BLM, Yuma County, Arizona. Served as archaeology crew chief responsible for in field survey and National Register eligibility review for ten prehistoric sites and three historic objects.

Cultural Resource Survey and Evaluation for the Otay Business Park Project, San Diego County, California. Served as archaeologist responsible for surveying and testing programs for an approximately 160-acre development project in Otay Mesa, California. Recorded and tested prehistoric and historic resources for significance and eligibility to local and State registers.

La Jolla Mitigation Monitoring Reporting Program, City of San Diego, California. Served as archaeological and paleontological monitor for numerous private residence additions within a culturally significant section of La Jolla, California. Examples of projects include:

- The Schroeder Residence Project
- The Nicolaou Residence Project
- The Underwood/Hall Residence Project

Paleontological Monitoring for the Gateway at Torrey Hills Project, San Diego County, California. Served as paleontological monitor during mass grading and excavation of a 200,000-square-foot building complex in Del Mar, California.

Paleontological Monitoring for the University City Village Project, San Diego County, California. Served as paleontological monitor during mass grading of a 55-acre residential development site in University City, California.

Cultural and Paleontological Resource Monitoring for the Siempre Viva Phase II Project, San Diego County, California. Served as archaeological and paleontological monitor for mass grading of a 60-acre business park site in Otay Mesa, California.

Cultural Resource Study and Paleontological Monitoring for the San Diego State University (SDSU) Campus Master Plan Project, San Diego County, California. Served as archaeological and paleontological monitor for the mitigation monitoring program of the 55-acre SDSU Campus Improvement project.

Paleontological Monitoring for the La Maestra Project, San Diego County, California. Served as paleontological monitor during utility trenching for improvements to a 36,440-square-foot medical clinic in City Heights.

Education

Academy of Our Lady of Peace Parking Garage Project, T.B. Penick & Sons, Inc., San Diego, California. Served as staff archaeologist. Performed all laboratory duties for artifacts recovered from a historic refuse deposit discovered during construction; served as co-author of technical report.

Cultural Resources Monitoring, San Marcos Unified School District, San Diego County, California. Served as archaeology monitor responsible for available data review, construction activities monitoring, identified cultural resources recovery, strategy coordination with Native American groups, and cultural resource compliance establishment among contractors.

Cultural and Paleontological Resource Monitoring, San Marcos Unified School District, San Diego County, California. Served as archaeological and paleontological monitor for the mass grading of a 15-acre City of San Marcos school and park site.

Energy

Desert Green Solar Energy, Desert Green Solar Farm LLC, Borrego Springs, California. Served as co-author of technical report for a solar system project consisting of 45 acres of solar energy facility and offsite improvement corridors in Borrego Springs, San Diego County, California. Tasks include preparation and submittal of CEQA document.

McCoy Solar Energy, First Solar, Riverside County, California. Served as lead paleontological monitor during construction of the proposed 750-megawatt photovoltaic solar energy generating facility northwest of Blythe. Task included environmental compliance monitoring and project management support.

Cultural Resources for the Devers-Palo Verde 500-kilovolt (kV) Transmission Line, Southern California Edison (SCE), Riverside County, California. Served as archaeology monitor responsible for available data review, field survey, field monitoring, and cultural resource compliance maintenance among contractors.

Cultural Resource Survey for Sempra Generation Copper Mountain North Solar Facility, Sempra Energy, Clark County, Nevada. Served as archaeologist responsible for field survey, identified cultural resources recovery, GIS mapping and navigation, and site recordation.

Cultural Resource Survey for Kern Front Oil Field, Kern County, California. Served as archaeologist responsible for field surveying, recovering identified cultural resources, GIS mapping and navigating, and site recordation.

On-Call Cultural Resources, San Diego Gas and Electric (SDG&E), San Diego County, California. Served as field director and supported the undertakings of SDG&E for new construction, ongoing maintenance, and repair projects by conducting cultural resources inventories for various projects throughout the company service territory. Specific responsibilities included records search review, survey, field excavations, laboratory analysis, preparation of final report, and recommendations for resource significance and stewardship. Coordinated with other cultural resources staff, clients, and their subconsultants to implement, organize, conduct, and complete numerous small- to large-scale projects with overlapping schedules for SDG&E. Applied knowledge of local archaeological and Native American monitoring guidelines to assist SDG&E in completing projects within archaeologically sensitive areas. (Approximate contract value: $1,250,000). Examples of projects include:

- Pole Replacement Monitoring/Survey
- Wood to Steel Pole Conversion TL 678
- Wood to Steel Pole Conversion TL 6910
- Wood to Steel Pole Conversion TL 6914
- Wood to Steel Pole Conversion TL 683
- Wood to Steel Pole Conversion TL 637
- Wood to Steel Pole Conversion TL 688
- Wood to Steel Pole Conversion TL 698
- Orange Grove Re-conductoring Project TL 698
- Wood to Steel Pole Conversion TL 685
- Wood to Steel Pole Conversion TL 6932

Cultural Resource Survey and Support for the SDG&E East County Substation, San Diego County, California. Served as field director responsible for records search review, field survey, GIS mapping and GPS data analysis, preparation of final report, and recommendations for resource significance and stewardship.

Cultural Resource Monitoring for the San Juan Capistrano Gas Line Project, Southern California Gas Company, Orange County, California. Served as field director/archaeology monitor to provide immediate on-site response in the event that cultural material was discovered during excavation work. Responsible for review of available data, GIS mapping, site recordation, data analysis, coordination of strategies with Native American groups, and cultural resource compliance establishment among contractors.

Cultural Resource Survey for Silurian Valley Wind Application BLM, San Bernardino County, California. Served as archaeologist. Performed review of available data, field survey, GIS mapping and navigation, and site recordation.

Healthcare

Paleontological Monitoring for the Cardinal Court/Cabrillo Medical Center Project, San Diego County, California. Served as paleontological monitor during demolition of existing structure and mass grading for a 3-story Class A building.

Military

Cultural Resources Inventory of Proposed Utility Corridors Associated with the Edwards Air force Base (AFB) Area Development Plan, 412th Civil Engineer Directorate, Kern and Los Angeles Counties, California. Served as staff archaeologist for the cultural resources inventory for approximately 4,339-acres of utility corridor within Edwards AFB. Assisted in report preparation and submittal of NEPA and NHPA Section 106 deliverable.

Environmental Assessment Addressing Upgrades to Support Maintenance and Energy and Water Supply Project at Navy Installation San Clemente Island, Naval Facilities Engineering Command Atlantic (NAVFAC LANT), San Clemente Island, California. Served as field director/health and safety officer and supported the undertakings of NAVFAC LANT through assessing potential impacts to cultural resources within proposed corridors along all utilities, roads, and structures for maintenance, upgrades, and vegetation management. Conducted a base-wide archaeological site record and literature search. Developed a GIS database containing site locational information of cultural resources impacted by the proposed plan. (Approximate contract value: $700,000).

Recreation

Cultural Resource Survey for Palomar Mountain State Park Fire Prevention, California Department of Parks and Recreation, San Diego County, California. Served as archaeologist responsible for review of available data, field survey, GIS mapping and navigation, and site recordation.

Cultural and Paleontological Resource Monitoring for the Fletcher Cove Park Improvements, California. Served as archaeological and paleontological monitor during grading and infrastructure alterations within the existing City of Solana Beach Park.

Resource Management

Mitigation, Monitoring, and Reporting for the 1900 and 1912 Spindrift Drive Projects, Private Client. La Jolla, California. Served as field director and health and safety officer responsible for implementation and oversight of a multiphase data recovery program and subsequent monitoring to satisfy City of San Diego and CEQA guidelines and regulations. Specific responsibilities included managing the daily operations of the archaeological excavation and cultural materials inventory program and monitoring effort; orchestrating fieldwork, billing, and staffing; coordinating and consulting with Native American tribes and agencies; supervising the project crew; adhering to a strict health and safety plan in order to guarantee project safety standards; ensuring that project progression is adequate to meet or exceed project end goals; observing and interpreting archaeological excavation data in order to maximize research potential and meet the requirements of the City of San Diego, CEQA, and client/representatives; creating daily schedules and staffing plans; coordinating with various agencies and client representatives; and supervising laboratory work. (Approximate contract value: $1,000,000).

Cultural Resource Study and Evaluation for LaPozz Claim Test, Kern County, California. Served as archaeologist responsible for review of available data, field excavations and survey, GIS mapping and navigation, site recordation, and data analysis.

Water/Wastewater

Little Lake MDP Line B, Stage 1, Riverside County Flood Control and Water Conservation District, San Jacinto and Hemet, California. Served as project archaeologist for archaeological monitoring during construction, operation and maintenance of approximately 9,000 linear feet of underground storm drain facilities in the cities of San Jacinto and Hemet. Tasks include evaluation and treatment of unanticipated discoveries and preparation of deliverables.

Cultural Resource Study, Padre Dam Municipal Water District, San Diego County, California. Served as archaeologist responsible for review of available data, field excavation, GIS mapping, site recordation, strategy coordination with Native American groups, and laboratory analysis.

Cultural and Paleontological Resource Study for the City of San Diego Reclaimed Water Distribution System Project, San Diego, California. Served as archaeological and paleontological monitor for the City of San Diego's continuing annual water and sewer main replacement program. Examples of projects include:

- Sewer and Water Group 683A
- Sewer and Water Group 676
- Sewer and Water Group 796
- Sewer and Water Group 741
- Sewer and Water Group 718
- Sewer Pump Station 19 Replacement
- Sorrento Valley Sewer and Pump Station 89

Relevant Previous Experience

Field Director/Health and Safety Officer, HDR, San Diego, California. Responsible for management of all aspects of field projects, including Phase I, II, and III projects under both CEQA and NHPA (Section 106 and 110). Manages crews of up to 20 individuals, supervises all daily field and laboratory operations, and maintains client relationships. Contributed to project's budget management and project report writing. (2009–2014)

Field Crew Chief/Archaeological Technician, ASM Affiliates, Inc., Carlsbad, California. Responsible for management of fieldwork on a long-term night project. Performed survey, monitoring, and excavation on various projects throughout Southern California and Nevada. Performed laboratory work including identification of prehistoric and historic material from site's within the Southwestern region. (2009–2010)

Laboratory Manager/Field Director, Brian F. Smith & Associates, Poway, California. Responsible for management of all aspects of field projects including Phase I, II, and III projects. Managed crews of up to ten individuals, supervised all daily field and laboratory operations, and maintained client relationships. Composed final project reports and curated cultural material. Performed as-needed paleontological monitoring. (2004–2009)

Crew Chief/Archaeological Technician, Richard Grubb & Associates, Cranbury, New Jersey. Performed survey, monitoring, and excavation on various projects throughout New England. Performed laboratory work including identification of prehistoric and historic material. Conducted background research for project's and was responsible for laboratory work and cultural material curation. (2001–2004)

Archaeological Technician, Thunderbird, Washington, DC. Performed survey and excavation on various projects throughout the Mid-Atlantic region. Performed laboratory work including identification of prehistoric and historic material. (2000–2001)

Samantha Murray, MA

Senior Architectural Historian

Samantha Murray is Dudek's historic built environment lead and a senior architectural historian with 13 years' experience in all elements of cultural resources management, including project management, intensive-level field investigations, architectural history studies, and historical significance evaluations in consideration of the California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), and local-level evaluation criteria. Ms. Murray has conducted hundreds of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles, including private residential, commercial, industrial, educational, medical, ranching, mining, airport, and cemetery properties, as well as a variety of engineering structures and objects. She has also provided expertise on numerous projects requiring conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Ms. Murray meets the Secretary of the Interior's Professional Qualification Standards for both Architectural History and Archaeology. She is experienced managing multidisciplinary projects in the lines of transportation, transmission and generation, federal land management, land development, state and local government, and the private sector. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). She also prepared numerous Historic Resources Evaluation Reports (HRERs) and Historic Property Survey Reports (HPSRs) for the California Department of Transportation (Caltrans).

Samantha Murray

Education

California State University,
Los Angeles
MA, Anthropology, 2013

California State University,
Northridge
BA, Anthropology, 2003

Professional Affiliations

California Preservation Foundation

National Trust for Historic Preservation

Registered Professional Archaeologist

Society of Architectural Historians

Project Experience

Development

Birch Specific Plan 32-Unit Condo Project, City of Carson, Los Angeles County, California. Dudek was retained by the City of Carson to prepare a cultural resources report for a project that proposes to demolish approximately 6,200 square feet of existing residential buildings and roughly 5,850 square feet of pavement on the project site, and construct a 32-unit residential condominium community with on-grade parking, landscaping, and other associated improvements. The historical significance evaluation included three residential properties proposed for demolition. All properties were found not eligible under all designation criteria and integrity requirements. Pprovided QA/QC of the final cultural resources report.

HABS Written Documentation for Camp Haan, Riverside County, California. Dudek was retained by the County of Riverside Economic Development Agency (EDA) to prepare HABS documentation for approximately 28 building foundations associated with the Camp Haan property located on March Air Reserve Base. Provided project management and QA/QC of the final HABS documentation and submittal package. **(2017)**

The 1431 El Camino Real Project, City of Burlingame, San Mateo County, California. The City of Burlingame proposes to demolish an existing four-unit (two-story) apartment building along with the detached five-car garage structure at the rear and construct a new six-unit (three-story) townhouse complex, totaling 3,858 square feet and a proposed height of 35 feet. The property at 1431-1433 El Camino Real was constructed in 1947 and required evaluation for historical significance. Further, because the property requires a Caltrans encroachment permit, a Caltrans-compliant Historical Resources Compliance Report (HRCR) was prepared. In addition to evaluating the building at 1431 El Camino, Dudek also had to address impacts to an NRHP-listed tree row within the project area. Co-authored the HRCR, provided QA/QC of the final cultural resources report, and prepared the SOIS and ESA Action Plans required by Caltrans as mitigation for the NRHP-listed resource.

Chino Annexation Area Project, City of Chino, San Bernardino County, California. The Chino Annexation Area Project involves annexation of an approximately 40-acre site (project site or annexation area) into the City of Chino, as well as approval of General Plan Amendments and pre-zoning designations for this site. Seven previously unrecorded historic-age resources were identified within the project area and were recorded and evaluation for historical significance. All properties were found not eligible for designation. Prepared the evaluations and conducted QA/QC of the cultural resources MND section. **(2017)**

Santa Monica/Orange Grove Mixed-Use Development at 7811 Santa Monica Boulevard, City of West Hollywood, Los Angeles County, California (2017). Dudek was retained by the City of West Hollywood to prepare an Environmental Impact Report (EIR) for the Santa Monica/Orange Grove Mixed-Use Development Project. In support of the EIR, Dudek conducted a cultural resources inventory and evaluation of two commercial properties at 7811 Santa Monica Blvd. and 1125-1127 N. Ogden Drive. Both properties were found not eligible for designation under NRHP, CRHR and local designation criteria. Co-authored the technical report and provided QA/QC.

Duke Fontana Warehouse Project, City of Fontana, San Bernardino County, California (2017). Dudek was retained by the City of Fontana to conduct a cultural resources study for the proposed Duke Fontana Warehouse Project. The proposed project would include construction of a 288,215-square-foot (gross), one-story industrial/warehouse building on an approximately 13.45-acre site at the intersection of Santa Ana Avenue and Oleander Avenue. As part of the cultural resources study, Dudek evaluated 8 residential properties over 45 years old for historical significance. The resources were found not eligible under all designation criteria and integrity requirements. Assisted with background research, co-authored the report, and provided QA/QC of the final cultural resources report.

Pacific Freeway Center Project, City of Fontana, San Bernardino County, California (2017). Dudek was retained by the City of Fontana to conduct a cultural resources study for the proposed Pacific Freeway Center Project. The project would include construction and operation of two "high cube" warehouse/distribution/logistics buildings with associated office spaces, surface parking, and loading areas. As part of the cultural resources study, Dudek evaluated the former Union Carbide Site for historical significance. The resource was found not eligible under all designation criteria and integrity requirements. Assisted with background research, co-authored the report, and provided QA/QC of the final cultural resources report.

Transportation Vessels Manufacturing Facility Project at Berth 240, Port of Los Angeles, Los Angeles County, California (2017). Dudek was retained by the Los Angeles Harbor Department (LAHD) to provide a cultural resources assessment for a project that proposes to construct a facility to manufacture transportation vessels at Berth 240 off South Seaside Avenue on Terminal Island. The site is adjacent to the NRHP-eligible Bethlehem Shipyard Historic District. Provided an updated conditions assessment of the site and an updated evaluation of the historic district to address integrity issues. She also reviewed project design plans for new construction within the district for conformance with the Secretary of the Interior's Standards for Rehabilitation.

Berths 238-239 [PBF Energy] Marine Oil Terminal Wharf Improvements Project and Lease Renewal, Port of Los Angeles, Los Angeles County, California (2017). Dudek was retained by the Los Angeles Harbor Department (LAHD) to provide an updated cultural resources assessment for Berths 238-239 at the Port of Los Angeles (POLA), as part of the proposed Environmental Impact Report (EIR) for the Berths 238-239 [PBF Energy] Marine Oil Terminal Wharf Improvements Project and Lease Renewal. Updated a previous evaluation of the project area conducted in 2010. This included a pedestrian survey, archival research, and a cultural resources impact assessment. The wharf was found not eligible under all designation criteria.

Robertson Lane Hotel Commercial Redevelopment Project, City of West Hollywood, Los Angeles County, California (2017). Serving as architectural historian and peer reviewer of the historical evaluation report. The project involved conducting a records search, archival research, consultation with local historical groups, preparation of a detailed historic context statement, evaluation of three buildings proposed for demolition in consideration of local, CRHR, and NRHP designation criteria, and assistance with the EIR alternatives analysis.

8777 Washington Boulevard Project, Culver City, Los Angeles County, California (2017). Dudek prepared a cultural resources assessment for a project that proposed to demolish the property located at 8777 Washington Blvd. Evaluated the building for NRHP, CRHR, and local level criteria and integrity requirements and co-authored the cultural resources report.

Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project, City of Merced, Merced County, California (2017). Managed and reviewed the historic resource significance evaluation of a single-family residence/agricultural property within the proposed project site. The evaluation found the property not eligible under all NRHP and CRHR designation criteria. The project proposes to annex 70 acres from Merced County to the City of Merced and to construct and operate the University Village Merced Student Housing and Commercial component on an approximately 30-acre portion of the project site. No development is proposed on the remaining 40 acres.

Historical Evaluation of 3877 El Camino Real, City of Palo Alto, Santa Clara County, California (2017). Served as architectural historian, originally providing a peer review of another consultant's evaluation. The City then asked Dudek to re-do the original evaluation report. As part of this work, conducted additional archival research on the property and evaluated the building for historical significance in consideration of local, state, and national designation criteria and integrity requirements. The project proposes to demolish the existing building and develop new housing.

North Montclair Downtown Specific Plan EIR, City of Montclair, San Bernardino County California (2016). The project proposes expansion of the Montclair Plaza (the Mall)— a regional shopping center— which would involve the demolition of portions of the existing Mall, construction of new retail/entertainment/restaurant space, renovation and refurbishment of portions of the existing mall, and the construction additional structured and surface parking. Prepared the cultural resources MND section.

Land Park Commercial Center EIR, City of Sacramento, Sacramento County, California (2016). Dudek was retained by Mo Capital to prepare a cultural resources study for the Land Park Commercial Center Project. Three resources over 45 years old within the project area required evaluation for historical significance. All properties were found ineligible for designation. Co-authored the cultural resources report.

Jack in the Box Drive Through Restaurant Project, City of Downey, Los Angeles County, California (2015). Served as architectural historian and lead author of the cultural resources study which included evaluation of two historic resources in consideration of national, state, and local criteria and integrity requirements. The study also included a records search, survey, and Native American Coordination.

Covina Transit-Oriented Mixed-Use Development Project, City of Covina, Los Angeles County, California (2016). The proposed project would involve a General Plan Amendment (GPA) to develop a mixed-use residential, transit-oriented development (TOD) project. The proposed project would consist of three primary components: 1) a Transit Center and Park & Ride facility; 2) the Covina Innovation, Technology, and Event Center (iTEC)—an event center and professional office incubator space; and 3) residential townhome units. Evaluated one residential and one commercial property over 45 years old for historical significance. Both were found not eligible. Also co-authored the cultural resources technical report.

635 S. Citrus Avenue Proposed Car Dealership MND, City of Covina, Los Angeles County, California (2015). Served as architectural historian and archaeologist, and author of the cultural resources MND section. The project proposes to convert an existing Enterprise Rent-a-Car facility into a car dealership. As part of the MND section, conducted a records search, Native American coordination, background research, building permit research, and a historical significance evaluation of the property. The study resulted in a finding of less-than-significant impacts to cultural resources.

8228 Sunset Boulevard Tall Wall Project, City of West Hollywood, Los Angeles County California (2014). Prepared DPR forms and conducted building development and archival research to evaluate a historic-age office building. The project proposes to install a tall wall sign on the east side of the building.

Historic Resource Evaluation of 8572 Cherokee Drive, City of Downey, Los Angeles County, California (2014). Served as architectural historian and project manager. She prepared a historical resource evaluation report and a set of DPR forms to evaluate a partially demolished residence that was previously determined eligible for inclusion in the NRHP (known as the Al Ball House). The current owner is proposing to subdivide the lot and develop four new homes.

Montclair Plaza Expansion Project, City of Montclair, San Bernardino County, California (2014). Prepared the cultural resources MND section, which included an evaluation of several department store buildings proposed for demolition. All buildings were found ineligible for listing. The project proposes to expand the existing Montclair Plaza Shopping Center.

Foothill 533 IS/MND, City Ventures, City of Glendora, Los Angeles County, California (2014). Served as architectural historian, archaeologist, and author of the cultural resources IS/MND section. As part of the cultural study, recorded and evaluated five historic-age commercial/industrial properties proposed for demolition as part of the project. The project proposes to develop a series of new townhomes.

Normal Street Project, City of San Diego, San Diego County, California (2014). Served as architectural historian and co-author of the Historical Resources Technical Report for properties located at 3921-3923; 3925-3927; 3935 Normal Street for the City of San Diego's Development Services Department. Assisted with the final round of comments from the City and wrote historical significance evaluations for all properties included in the project.

Education

Castilleja School Project, City of Palo Alto, Santa Clara County, California. Dudek was retained by the City of Palo Alto to conduct a cultural resources study for the Castilleja Master Plan and Conditional Use Permit project. The study included a historical significance evaluation of the campus and related buildings and structures. Co-authored the cultural resources report and provided QA/QC.

Fullerton College Facilities Master Plan Program EIR, North Orange County Community College District, City of Fullerton, Orange County, California. The North Orange County Community College District (NOCCCD) is undertaking a comprehensive improvement and building program to make upgrades and repairs to existing buildings, as well as to construct new facilities to improve the safety and education experience of those attending Fullerton College. The College proposed to implement the Facilities Master Plan to more effectively meet the space needs of the projected on-campus enrollment through the next decade and beyond, while constructing and renovating facilities to meet the District's instructional needs. Co-authored and oversaw the cultural resources study. All buildings and structures on campus over 45 years old and/or or proposed for demolition/substantial alteration as part of the proposed project were photographed, researched, and evaluated in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA. As a result of the significance evaluation, three historic districts and one individually eligible building were identified within the project area. The study also entailed conducting extensive archival and building development research, a records search, Native American coordination, detailed impacts assessment, and development of mitigation measures for project conformance with the Secretary of the Interior's Standards for Rehabilitation.

MiraCosta Community College District Oceanside Campus, San Diego County, California (2017). Dudek was retained by the MiraCosta Community College District (MCCCD) to conduct a cultural resources study for the proposed Oceanside Campus Facilities Master Plan. Of the original 11 buildings constructed in the early 1960s, nine are still extant and required evaluation for historical significance. The campus was ultimately found ineligible for designation due to a lack of important historical associations and integrity issues. Provided QA/QC of the final cultural report.

CSU Chico College Park Demolition Project, Butte County, California (2017). Dudek was retained by California State University (CSU), Chico to complete a cultural resources study for a project that proposes demolition of 10 single-family residences near the CSU Chico campus in the City of Chico, Butte County, California. The study involved completion of a California Historical Information System (CHRIS) records search, outreach with the Native American Heritage Commission (NAHC) and local tribes/groups, a pedestrian survey of the project area for built-environment resources, and recordation and evaluation of 10 properties for historical significance. The significance evaluations included conducting archival and building development research for each property; outreach with local libraries, historical societies, and advocacy groups; and completion of a historic context. This study was conducted in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, and the project site was evaluated in consideration of CRHR and City of Chico Historic Resources Inventory eligibility and integrity requirements. Furthermore, as required under California Public Resources Code (PRC) Sections 5024 and 5024.5, CSU Chico is required to provide notification and submit documentation to the State Historic Preservation Officer (SHPO) for any project having the potential to affect state-owned historical resources on or eligible for inclusion in the Master List. In accordance with PRC Section 5024(a), all properties were also evaluated in consideration of the NRHP and California Historical Landmark (CHL) criteria and integrity requirements. All 10 properties evaluated for historical significance appear to be not eligible for inclusion in the NRHP, CRHR, CHL, or local register (6Z) due to a lack of significant historical associations and compromised integrity.

SDSU Tula Pavilion and Tenochca Hall Renewal/Refresh, San Diego, California (2017). Dudek was retained by the San Diego State University (SDSU) to evaluate potential impacts to historical resources associated with the proposed Tula Pavilion and Tenochca Hall Renewal/Refresh project located in San Diego, California. The historic resources technical memorandum provides the results of that evaluation. Provided quality assurance/quality control of the final work product and provided input on impacts to historical resources.

Kings Beach Elementary School Modernization Project, Tahoe Truckee Unified School District, Tahoe City, Placer County, California (2016). Served as architectural historian and co-author of the cultural resources study. The study involved evaluation of the existing school for NRHP, CRHR and local eligibility, conducting archival and building development research, a records search, and Native American coordination.

Truckee High School Trach and Field Improvements Project, Tahoe Truckee Unified School District, Town of Truckee, Nevada County, California (2016). Dudek was retained by the Tahoe Truckee Unified School District (the District) to prepare a cultural resources study for the Truckee High School Track and Field Improvements. Provided QA/QC of the evaluation of several buildings within the high school and co-authored the cultural resources report.

Cypress College Facilities Master Plan Program EIR, City of Cypress, Orange County, California (2016). The North Orange County Community College District (NOCCCD) is undertaking a comprehensive improvement and building program to make upgrades and repairs to existing buildings, as well as to construct new facilities to improve the safety and education experience of those attending Cypress College. The College proposed to implement the Facilities Master Plan to more effectively meet the space needs of the projected on-campus enrollment through the next decade and beyond, while constructing and renovating facilities to meet the District's instructional needs. Authored the cultural resources study for the project, which included a significance evaluation of all 1960s and 1970s buildings on campus proposed for demolition or renovation. As a result of the significance evaluation, including consideration of CRHR evaluation criteria and integrity requirements, the original 1960s–1970s campus appears to be eligible as a historic district under CRHR Criterion 3 for conveying a concentration of planned buildings, structures, and associated elements united aesthetically by their embodiment of the Brutalist style. The study also entailed conducting extensive archival and building development research, a records search, Native American coordination, detailed impacts assessment, and development of mitigation measures for project conformance with the Secretary of the Interior's Standards for Rehabilitation.

Schouten House Property Evaluation, California State University, Chico Research Foundation, Butte County, California (2016). Prepared historic resource evaluation report and DPR form for a former single-family residence located at 2979 Hegan Lane in Butte County, California, in consideration of CRHR and local level eligibility criteria and integrity requirements. The University Research Foundation was proposing demolition of the property.

Tahoe Lake Elementary School Facilities Master Plan Project, Tahoe Truckee Unified School District, Tahoe City, Placer County, California (2015). Served as architectural historian and lead author of the cultural resources study. She recorded and evaluated the Tahoe Lake Elementary School Building for NRHP, CRHR, and local level criteria and integrity considerations. The study also entailed conducting archival and building development research, a records search, and Native American coordination.

San Diego State University (SDSU) Open Air Theater Renovation Project, SDSU and Gatzke Dillon & Balance, LLP, San Diego, California (2015). Served as architectural historian and prepared a technical memorandum that analyzed the project's potential to impact the OAT theater (a contributing property to the San Diego State College NRHP Historic District). This included conducting a site visit, reviewing proposed site and design plans, and preparing a memorandum analyzing the project's conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Mt. San Jacinto College (MSJC) Master Plan Project, City of San Jacinto, Riverside County, California (2015). Served as architectural historian, archaeologist, and lead author of the cultural resources study. As part of the study she evaluated 11 buildings for NRHP, CRHR, and local level criteria and integrity requirements. The buildings were constructed prior to 1970 and proposed for demolition as part of the project. The study also entailed conducting extensive archival and building development research at District offices, a records search, and Native American coordination.

San Diego State University (SDSU) Engineering and Sciences Facilities Project, SDSU and Gatzke Dillon & Balance, LLP, San Diego, California (2014). Served as architectural historian, archaeologist, and lead author of the Cultural Resources Technical Report for the SDSU Engineering and Interdisciplinary Sciences Building Project. The project required evaluation of 5 historic-age buildings in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, an intensive level survey, Native American coordination, and a records search. The project proposes to demolish four buildings and alter a fifth as part of the university's plan to update its engineering and science facilities.

Big Chico Creek Ecological Reserve (BCCER) Henning Property Historical Evaluation, California State University, Chico, Butte County, California (2014). Authored the historical significance evaluation report for a property located at 3521 14 Mile House Road as requested by the California State University Chico Research Foundation. The property is historically known as the Henning Property and has served as the BCCER conference center in recent years. The Foundation is considering demolition of the existing property due to numerous safety concerns and the high cost associated with bringing the building up to current code requirements.

The Cove: 5th Avenue Chula Vista Project, E2 ManageTech Inc., City of Chula Vista, San Diego County, California (2014). Served as architectural historian and co-author of the CEQA report. The project involved recordation and evaluation of several properties functioning as part of the Sweetwater Union High School District administration facility, proposed for redevelopment, as well as an archaeological survey of the project area.

Energy

J-135I Electrical Distribution and Substation Improvements and J-600 San Dieguito Pump Station Replacement Project, Santa Fe Irrigation, San Diego County, California (2014). Served as architectural historian and prepared the Department of Parks and Recreation (DPR) forms and associated memo concerning replacement of the original 1964 San Dieguito Pump Station. Recorded and evaluated the pump house for state and local significance and integrity considerations. As part of this effort she conducted background research, prepared a brief historic context, and a significance evaluation.

Expert Witness

Robert Salamone vs. The City of Whittier (2016). Was retained by the City of Whittier to serve as an expert witness for the defense. She peer reviewed a historic resource evaluation prepared by another consultant and provided expert testimony regarding the contents and findings of that report as well as historic resource requirements on a local and state level in consideration of the City of Whittier's Municipal Code Section 18.84 and CEQA. Judgement was awarded in favor of the City on all counts.

Healthcare

Hamilton Hospital Residential Care Facility Project, City of Novato, Marin County, California (2015). Served as architectural historian, prepared a cultural resources study, and assessed the proposed project's design plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The project proposed to construct an addition and make alterations to an NRHP-listed district contributing property. Performed review, enabling the project to demonstrate conformance with the Standards for Rehabilitation.

Culver Place Assisted Living Project, DJB Architects, Culver City, Los Angeles County, California (2014). Served as architectural historian, archaeologist, and author of the Letter Report for a Cultural and Paleontological Resources Study. Conducted the intensive-level cultural resources survey of the project area, conducted background research, and coordinated with local Native American groups. The project proposes to construct an assisted living facility on a large private property in Culver City.

Municipal

The Santa Monica City Yards Master Plan Project, City of Santa Monica, Los Angeles County, California (2017). The City of Santa Monica retained Dudek to complete a cultural resources study for the proposed City Yards Master Plan project site located at 2500 Michigan Avenue in the City of Santa Monica. The study involved evaluation of the entire City Yards site, including two murals and a set of concrete carvings for historical significance and integrity. As a result, the City Yards and its associated public art work was found ineligible under all designation criteria. Conducted the intensive level survey, building permit research, co-authored the technical report, and provided QA/QC of the final cultural resources report.

148 North Huntington Street, City of Pomona, Los Angeles County, California (2017). Dudek was retained by the City of Pomona to conduct a cultural resources study for the remediation of the project site located at 148 North Huntington Street. The proposed project involves the excavation, removal, and off-site treatment of approximately 10,000 Cubic Yards (CYs) of contaminated soil due to the former presence of a manufactured gas plant (MGP) at the project site (currently the City of Pomona Water and Wastewater Yards). All buildings over 45 years of age within the project site were evaluated for the CRHR and local landmark eligibility as part of the Pomona Gas Plant site. The site was found not eligible with concurrence from the historic resources commission. Conducted the survey, prepared the evaluation, and authored the cultural resources report.

Tequesquite Creek Maintenance Project, City of Riverside, Riverside County, California (2017). Dudek was retained by the City of Riverside to conduct a cultural resources study for the proposed Tequesquite Creek Maintenance Project. The Tequesquite Creek Channel was constructed circa 1962-1966 and required evaluation for historical significance. The resource was found ineligible under all designation criteria and integrity requirements. Co-authored the significance evaluation and provided QA/QC of the cultural resources report.

Northside Specific Plan, Cities of Riverside and Colton, San Bernardino and Riverside Counties, California (2017). Dudek prepared cultural resources constraints analysis in support of the proposed Northside Specific Plan Project located in the City of Riverside in Riverside County and the City of Colton in San Bernardino County, California. The report presents the results of a cultural resources records search and literature review and preliminary Native American coordination, including an inventory of identified historical resources within the plan area. Provided QA/QC of the final cultural resources report.

LADWP West Los Angeles District Yard Project, City of Los Angeles, Los Angeles County, California (2017). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes demolition of five LADWP-owned administrative buildings and warehouses at the West Los Angeles District Headquarters located at 12300 West Nebraska Avenue. Dudek evaluated the yard for historical significance in consideration of NRHP, CRHR, and City of Los Angeles HCM criteria and integrity requirements. Co-authored the significance evaluation and provided QA/QC of the cultural resources report.

LADWP Haynes Generating Station Units 3 through 6 Demolition Project, City of Long Beach, Los Angeles County, California (2017). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes demolition of Units 3-6 at the LADWP Haynes Generating Station. Evaluated the entire steam plant for historical significance in consideration of NRHP, CRHR, and City of Long Beach designation criteria and integrity requirements, and co-authored the cultural resources report.

LADWP Green Verdugo Reservoir Improvement Project, City of Los Angeles, Los Angeles County, California (2017). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes facility updates at the reservoir site in order to ensure safe water quality. Evaluated the reservoir for historical significance in consideration of NRHP, CRHR, and City of Los Angeles HCM designation criteria and integrity requirements, and co-authored the cultural resources report.

LADWP Upper Stone Canyon Reservoir Water Quality Improvement Project, City of Los Angeles, Los Angeles County, California (2016). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes to maintain and improve the quality, reliability, and stability of the Stone Canyon Reservoir Complex (SCRC) service area drinking water supply in order to continue to meet customer demand. Dudek prepared an updated evaluation of the reservoir in consideration of NRHP, CRHR, and City of Los Angeles HCM criteria and integrity requirements. Conducted the built environment survey, archival research, and co-authored the cultural resources report.

LADWP North Hollywood West Well Field Water Treatment Project, City of Los Angeles, Los Angeles County, California (2016). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposes to implement a response action to address releases of 1,4 dioxane in groundwater that are migrating to the NHW Well Field. This response action would be achieved by installing treatment equipment at the well field capable of removing 1,4-dioxane to below the identified cleanup levels. Provided QA/QC of the cultural resources technical report.

LADWP Power Plant 1 Long-Term Maintenance Program Project, City of Los Angeles, Los Angeles County, California (2016). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for the proposed long-term maintenance of the flood control infrastructure in the vicinity of Power Plant 1. Prepared the cultural resources impacts assessment, co-authored the cultural resources report, and provided QA/QC of the cultural resources technical report.

LADWP Bishop Creek Bridge Replacement Project, City of Bishop, Inyo County, California (2016). Dudek was retained by Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for a project that proposed to replace two bridges and their associated infrastructure: the bridge across South Fork Bishop Creek at the Bishop Creek Canal, and the bridge across Bishop Creek at the A-1 Drain. Evaluated both bridges for historical significance and found them not eligible due to a lack of important historical associations and integrity. Also prepared the cultural resources technical report.

Rocketship Center Road Public Elementary School Project, City of San Jose, Santa Clara County, California (2015). Served as architectural historian and prepared a historic resource evaluation report in compliance with the City of San Jose's historic preservation ordinance. Evaluated a 1960s church building in consideration of NRHP, CRHR, and local designation criteria and integrity requirements.

Orange County Central Utility Facility Upgrade, County of Orange Public Works, City of Santa Ana, Orange County, California (2014). To further the County's long-term goals of operational safety, improved efficiency, cost effectiveness, and supporting future campus development plans, the proposed Central Utility Facility Upgrade project consisted of improvements and equipment replacements recommended by the Strategic Development Plan for the CUF's original utility systems. Served as architectural historian and archaeologist, and prepared the cultural resources MND section. As part of this effort, conducted a detailed review of historic resource issues within and around the proposed project area to assess potential impacts to historic buildings and structures. The proposed project involved improvements to 16 buildings located within the Civic Center Campus. As a result of the cultural resources analysis, it was determined that the proposed project would not result in a substantial adverse change to any of the historic-age buildings or the associated Civic Center Plaza walkways/landscaping.

San Carlos Library Historical Resource Technical Report, City of San Diego, California (2014). Served as architectural historian and author of the Historical Resource Technical Report. Preparation of the report involved conducting extensive building development and archival research on the library building, development of a historic context, and a historical significance evaluation in consideration of local, state, and national designation criteria and integrity requirements. The project proposes to build a new, larger library building.

Peer Review

Peer Review of 1106 North Branciforte Avenue, City of Santa Cruz, Santa Cruz County, California (2017). Dudek was retained by the City of Santa Cruz to peer review the revised Department of Parks and Recreation Series 523 forms (DPR forms) for the property located at 1106 North Branciforte Avenue in the City of Santa Cruz. Conducted two rounds of peer review on the original and revised evaluation.

Peer Review of Avenidas Expansion Project, City of Palo Alto, Santa Clara County, California (2016). Peer-reviewed a historical resource evaluation report for the property at 450 Bryant Street. The peer review assessed the report's adequacy as an evaluation in consideration of state and local eligibility criteria and assessed the project's conformance with the Secretary of the Interior's Standards for Rehabilitation.

Peer Review of 429 University Avenue Historic Resources Evaluation Report, City of Palo Alto, Santa Clara County California (2014). Conducted a peer review of a study prepared by another consultant, and provided a memorandum summarizing the review, comments, and recommendations, and is currently working on additional building studies for the City of Palo Alto.

Peer Review of 1050 Page Mill Road Historic Resources Evaluation Report, City of Palo Alto, Santa Clara County, California (2014). Conducted a peer review of a study prepared by another consultant, and provided a memorandum summarizing the review, comments, and recommendations.

State of California

Judicial Council of California Historical Resource Evaluation Report for the Santa Monica Courthouse, City of Santa Monica, Los Angeles County, California (2017). Dudek was retained by the Judicial Council of California (JCC) to prepare an evaluation of the Santa Monica Courthouse building, located at 1725 Main Street in the City of Santa Monica, California. To comply with Public Resources Code Section 5024(b), the JCC must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under the JCC's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or registered or that may be eligible for registration as a California Historical Landmark (CHL). The Santa Monica Courthouse was found not eligible for designation under all applicable criteria. Co-authored the report and provided QA/QC of the final cultural resources report.

Judicial Council of California Historical Resource Evaluation Report for the Figueroa Division Courthouse, City of Santa Barbara, Santa Barbara County, California (2017). Dudek was retained by the Judicial Council of California (JCC) to prepare an evaluation of the Santa Monica Courthouse building, located at 118 E. Figueroa Street in the City of Santa Barbara, California. To comply with Public Resources Code Section 5024(b), the JCC must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under the JCC's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or registered or that may be eligible for registration as a California Historical Landmark (CHL). The Figueroa Division Courthouse was found not eligible for designation under all applicable criteria. Co-authored the report and provided QA/QC of the final cultural resources report.

Department of General Services Historical Resource Evaluation for the Santa Barbara Armory Complex, City of Santa Barbara, California (2017). Dudek was retained by the State of California Department of General Services to mitigate potential adverse effects to the Santa Barbara Armory (700 East Canon Perdido Street), a state-owned historical resource proposed to be transferred from state ownership to a local agency or private owner. Assisted with preparation of a detailed significance evaluation for the Santa Barbara Armory in the consideration NRHP, CRHR, CHL, and City of Santa Barbara designation criteria and integrity requirements. SHPO concurred with the evaluation findings and had no comments.

Department of General Services Historical Resource Evaluation for the Pomona Armory at 600 South Park Avenue, City of Pomona, Los Angeles County, California (2017). Dudek was retained by the State of California Department of General Services to mitigate potential adverse effects to the Pomona Armory (600 South Park Avenue), a state-owned historical resource proposed to be transferred from state ownership to a local agency or private owner. Prepared a detailed significance evaluation for the Pomona Park Armory in the consideration NRHP, CRHR, CHL, and City of Pomona designation criteria and integrity requirements, and prepared a single historic landmark application for the property. The Pomona Park Armory was locally designated after unanimous approval by the Historic Resources Commission and City Council. SHPO concurred with the evaluation findings and agreed that adverse effects had been adequately mitigated with no comments.

Department of General Services Historical Resource Evaluation for the Normal Street Department of Motor Vehicles Site at 3960 Normal Street, San Diego, California (2017). Dudek was retained by the State of California Department of General Services to complete a Historical Resources Technical Report for a project that proposes demolition and replacement of the Department of Motor Vehicles (DMV) building located at 3960 Normal Street in the City of San Diego. To comply with Public Resources Code Section 5024(b), DGS must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under DGS's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or that may be eligible for registration as a California Historical Landmark (CHL). The DMV was found not eligible. Provided QA/QC of the historical resource technical report.

Transportation

Princeton Avenue Road Widening Project, City of Moorpark, Ventura County, California. Dudek was retained by Stantec and the City of Moorpark to prepare Caltrans-compliant cultural resource documentation for the Princeton Avenue Road Widening Project. The project includes approximately 0.75-miles of roadway widening and improvements, including sidewalks and bicycle lanes. Dudek prepared an ASR, HRER, and HPSR in support of this effort. Prepared the HRER and HPSR, which included evaluation of two industrial properties on Princeton Avenue. Both properties were found ineligible under all designation criteria and integrity requirements. As a Principal Architectural historian, was also able to exempt several properties from evaluation that were less than 50 years old or heavily altered. The reports are currently pending Caltrans District 7 approval.

Historical Resources Assessment for the SFO Residential Sound Insulation Program, Cities of San Bruno and Millbrae, San Mateo County, California (2017). Dudek was retained by San Francisco International Airport (SFO) to evaluate 28 residential properties constructed 50 years ago or more within the cities of San Bruno and Millbrae, in San Mateo County, California. These properties are proposed to receive installation of sound insulation materials as part of SFO's Residential Sound Insulation Program. All 28 properties were recorded and evaluated on State of California Department of Parks and Recreation Series 523 Forms for historical significance in consideration of National Register of Historic Places (NRHP) designation criteria and integrity requirements. Co-authored the technical report and provided QA/QC.

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project, Orange County Public Works, Caltrans District 12, California. Orange County Public Works (OCPW) proposes to remove and replace the existing Silverado Canyon Road as it passes over Ladd Creek on the proposed project at a location slightly east of the intersection of Ladd Canyon Road and Silverado Canyon Road. Caltrans District 12 required preparation of an ASR and HPSR. Developed the project's area of potential effects map, reviewed the project area for historical resources, and assisted with finalizing the HPSR.

California Boulevard Roundabout Project, OmniMeans, Caltrans District 4, City of Napa, California (2016). The California Department of Transportation (Caltrans) and the City of Napa worked together to deliver a cooperative project encompassing three intersections: First Street/California Boulevard, Second Street/California Boulevard, and State Route 29 (SR 29) northbound off-ramp/First Street. The City of Napa (City) proposed improvements at the First Street/California Boulevard and Second Street/California Boulevard intersections within the County of Napa. It was proposed to reconfigure these two intersections to improve traffic operations and accommodate the reversal in travel direction on First and Second Streets between California Boulevard and Jefferson Street. The project also proposes to modify the SR 29 northbound off-ramp and First Street intersection with a modern roundabout. Served as Principal Architectural Historian and archaeologist, preparing of the Area of Potential Effects (APE) map and subsequent preparation of Caltrans documentation, including an Archaeological Survey Report (ASR), Historical Resources Evaluation Report (HRER), Finding of No Adverse Effect Report (FNAE), and Historic Property Survey Report (HPSR). This included an evaluation of seven previously unevaluated properties for the NRHP and CRHR, and consideration of impacts to the West Napa Historic District.

SR 86 and Neckel Road Intersection Improvements and New Traffic Signal Light Project, Caltrans District 11, City of Imperial, California (2015). Served as Principal Architectural Historian, and author of the HPSR and Finding of No Adverse Effect document. The project involved an intensive field survey, Native American and historic group coordination, a records search, and recordation and NRHP and CRHR evaluation of two historic drainage canals proposed for improvement as part of Caltrans intersection improvement project. All documents were signed and approved by Caltrans District 11 and the Caltrans Cultural Studies Office.

Water/Wastewater

Morena Reservoir Outlet Tower Replacement Project, City of San Diego, California (2016). Evaluated the 1912 Morena Dam and Outlet Tower for NRHP, CRHR, and local level eligibility and integrity requirements. The project entailed conducting extensive archival research and development research at City archives, libraries, and historical societies, and preparation of a detailed historic context statement on the history of water development in San Diego County.

69th and Mohawk Pump Station Project, City of San Diego, California (2015). Served as architectural historian and lead author of the Historical Resource Technical Report for the pump station building on 69th and Mohawk Street. Preparation of the report involves conducting extensive building development and archival research on the pump station building, development of a historic context, and a historical significance evaluation in consideration of local, state, and national designation criteria and integrity requirements.

Pump Station No. 2 Power Reliability and Surge Protection Project, City of San Diego, California (2015). Served as architectural historian and prepared an addendum to the existing cultural resources report in order to evaluate the Pump Station No. 2 property for NRHP, CRHR, and local level eligibility and integrity requirements. This entailed conducting additional background research, building development research, a supplemental survey, and preparation of a historic context statement.

Otay River Estuary Restoration Project (ORERP), Poseidon Resources, South San Diego Bay, California (2014). Served as architectural historian for the documentation of Pond 15 and its associated levees. The project proposes to create new estuarine, salt marsh, and upland transition habitat from the existing salt ponds currently being used by the South Bay Salt Works salt mining facility. Because the facility was determined eligible for listing in the NRHP, the potential impacts caused by breeching the levees, a contributing feature of the property, had to be assessed.

Bear River Restoration at Rollins Reservoir Project, Nevada Irrigation District, Nevada and Placer Counties, California (2014). Served as architectural historian and co-author of the Cultural Resources Inventory Report. Conducted background research on the 1963 Chicago Park Powerhouse Bridge and prepared a historic context for the Little York Township and Secret Town Mine.

Relevant Previous Experience

LADPW BOE Gaffey Pool and Bathhouse Project, Los Angeles County, California (2014). Served as project manager, field director for the intensive-level cultural resources survey, and primary author of the cultural resources technical report. Reviewed proposed design plans for new construction within an NRHP-listed historic district for conformance with the Secretary of the Interior's Standards. The LADPW BOE proposed to conduct various improvements to the Gaffey Street Pool and surrounding area, located in Upper Reservation of Fort McArthur in San Pedro, California.

Metro Green Line to LAX Project, Terry Hayes Associates, Los Angeles, California (2013–2014). Served as project manager for a multidisciplinary project that includes cultural resources, biology, and paleontology. The Los Angeles County Metropolitan Transportation Authority (Metro), Federal Transit Administration (FTA), Federal Aviation Administration (FAA) and Los Angeles World Airports (LAWA) have initiated an Alternatives Analysis (AA)/Draft EIS/Draft EIR for the Metro Green Line to Los Angeles International Airport (LAX) project. The AA/DEIS/DEIR is being prepared to comply with NEPA and CEQA. This study will examine potential connections between the planned Metro Crenshaw/LAX Transit Corridor Project's Aviation/Century Station and the LAX Central Terminal Area (CTA) located approximately one mile to the west.

Downtown Cesar Chavez Median Project, LADPW BOE, Los Angeles County, California (2013). Served as field director for the intensive-level cultural resources survey, and co-author of the Caltrans ASR and HRER. The City of Los Angeles Department of Public Works (LAPDW), Bureau of Engineering (BOE), proposes to provide for transportation enhancements along West Cesar Chavez Boulevard in the downtown area of Los Angeles. Lead Agency: Caltrans, District 7.

San Gabriel Trench Grade Separation Project (Phases I, II, and III); Terry A. Hayes Associates LLC, Cities of San Gabriel, Alhambra, and Rosemead, Los Angeles County, California (2008–2010, 2011–2014). Served as Archaeologist, Architectural Historian, and Osteologist throughout various stages of the project. The project consisted of conducting a cultural resources assessment for a proposed grade separation located within the cities of San Gabriel, Alhambra, and Rosemead. The proposed project would lower a 2.2 mile section of Union Pacific Railroad tracks in the immediate vicinity of the historic Mission San Gabriel Arcángel. Involved in both the archaeological and architectural history components of this project. This includes the archaeological and architectural history field surveys, archaeological testing of the site and completion of over 100 DPR forms for the evaluation of built environment resources. Also served as the on-site human osteologist. Lead Agency: Caltrans.

Edwards Air Force Base Historic Context and Survey, JT3/CH2M Hill, Multiple Counties, California (2013). Served as lead architectural historian and project manager for survey and evaluation of 17 buildings and structures located throughout the base, and preparation of a Cold War historic context statement, an analysis of property types, and registration requirements for all built environment resources on base.

Terminal Island Historic Building Evaluations, CDM and Port of Los Angeles, Los Angeles County, California (2011). Served as project manager, field director for the architectural history survey, and primary author of the technical report. She formally evaluated 16 Port of Los Angeles-owned properties on Terminal Island for NRHP and CRHR eligibility, as well as local level eligibility.

Azusa Intermodal Parking Facility Project, Azusa, Terry Hayes Associates, Los Angeles County, California (2012). Served as field director, assistant project manager, and primary report author for the intensive-level cultural resources survey and cultural resources technical report, which included evaluation of several built environment resources adjacent to an existing NRHP district. The City of Azusa proposed to construct an approximately 39-foot-high, four-story parking structure, bus bays for passenger loading/unloading for layovers, and electric charging stations for patrons of the future Gold Line Foothill Extension Azusa Station.

LOSSAN San Luis Rey River and Second Track Project, HNTB Corporation, Oceanside, San Diego County, California (2011). Served as primary author for the technical report and conducted the intensive-level cultural resources field survey. The project proposes to construct a new 0.6-mile section of double-track to connect two existing passing tracks, and replace the existing San Luis Rey River Bridge. She prepared the cultural resources technical report and evaluated the bridge for NRHP, CRHR, and local level criteria and integrity requirements.

LADPW BOE San Pedro Plaza Park Project, LADPW BOE, Los Angeles County, California (2011). Served as project manager, field director for the intensive-level cultural resources survey, and primary author of the cultural resources technical report. Evaluated the entire park for local, CRHR, and NRHP eligibility and integrity requirements. The LADPW BOE proposed to conduct various outdoor improvements to the San Pedro Plaza Park.

Crenshaw /LAX Transit Corridor Project, Terry Hayes Associates LLC, Los Angeles County, California (2011). Supervised architectural history survey and participated in the evaluation of over 100 built environment resources that may be affected by the Los Angeles County Metropolitan Transportation Authority's (Metro's) proposed Crenshaw/LAX Transit Corridor Project. The project is approximately 8.5 miles in length and is located within the cities of Los Angeles and Inglewood, Los Angeles County, California. The project was subsequently approved by SHPO with no comments. Lead Agency: Metro.

LOSSAN Control Point San Onofre to Control Point Pulgas Double Track Project, HNTB Corporation, San Diego County, California (2011). Served as field director for the archaeological and architectural history survey and co-authored the technical report. She conducted a survey and evaluation of cultural resources in support of the Los Angeles to San Diego, California (LOSSAN) Control Point (CP) San Onofre to CP Pulgas Double Track Upgrade Project. The project is located within the boundaries of the Marine Corps Base (MCB) Camp Pendleton in Northern San Diego County, on federal land that is part of a long-term lease to the rail operator.

Half Moon Bay Airport Taxiway and Access Road Improvement Project, Coffman Associates, San Mateo County, California (2010). Served as field director for the archaeological and architectural history survey and co-authored the technical report. She conducted a cultural resources survey of 21.65 acres situated on three areas within the 313-acre airport property, and evaluated airport properties for the CRHR and NRHP. Half Moon Bay Airport is located approximately 5 miles north of the City of Half Moon Bay in unincorporated San Mateo County, California.

Sunset Avenue Grade Separation Project, Kimley-Horn and Associates Inc., Riverside County, California (2010). Served as field director for the archaeological and architectural history survey and co-authored the ASR, HRER, and HPSR reports. The project involved a proposed grade separation of Sunset Avenue, which crosses the UPRR in the City of Banning, Riverside County. She conducted a 43.6-acre survey for cultural resources, and prepared environmental compliance documentation in accordance with Caltrans. Lead Agency: Caltrans District 8.

Hollister Avenue Bridge Seismic Retrofit Project, Santa Barbara County Public Works Department, Santa Barbara County, California (2010). Supervised the architectural history survey of surrounding properties. The project proposed the seismic retrofit of Union Pacific Railroad (UPRR) Bridge 51C-0018 on Hollister Avenue in an unincorporated area of Santa Barbara County, located between UPRR mile posts 362.08 and 362.41. Lead Agency: Caltrans District 5.

Nogales Grade Separation/Gale Avenue Widening/Evaluation of 938 Nogales Street, Terry A. Hayes Associates LLC, City of Industry, Los Angeles County, California (2009). Participated in the architectural history field survey of several properties and co-authored the report. The project consisted of conducting a cultural resources assessment for a proposed grade separation project that would lower Nogales Street beneath the Union Pacific Railroad tracks and widen a 0.83 mile section of Walnut Drive/Gale Avenue located in the City of Industry. Agency: Caltrans.

Integrated Cultural Resources Management Plan Update for MCLB Barstow, NAVFAC Southwest, San Bernardino County, California (2011–2014). Served as project manager for the 2014 ICRMP update of the 2011 ICRMP that she authored. The update includes survey and evaluation of two historic road segments, recordation and preparation of a conditions assessment of the Rattlesnake Rock Art site, and revision of the NRHP nomination for the site.

Integrated Cultural Resources Management Plan, Naval Air Station, NAVFAC SW (U.S. Navy), Lemoore, Kings County, California (2009–2012). Served as project manager and primary author of the Final ICRMP document. The project consists of preparing a management plan for the protection and management of cultural resources located within Naval Air Station, Lemoore. The management plan inventories known cultural resources, summarizes relevant laws and regulations, and establishes management priorities for the installation.

Integrated Cultural Resources Management Plan, Naval Weapons Station, NAVFAC SW (U.S. Navy), Seal Beach, Detachment Corona, Riverside County, California (2009–2011). Served as project manager and primary author of the Advance Draft document. The project consists of preparing a management plan for the protection and management of cultural resources located within Naval Weapons Station, Seal Beach, Detachment Corona. The management plan inventories known cultural resources, summarizes relevant laws and regulations, and establishes management priorities for the installation.

Integrated Cultural Resources Management Plan, Naval Weapons Station, NAVFAC SW (U.S. Navy), Seal Beach, Orange County, California (2009–2011). Served as project manager and primary author of the Advance Draft document. The project consists of preparing a management plan for the protection and management of cultural resources located within Naval Weapons Station, Seal Beach. The management plan inventories known cultural resources, summarizes relevant laws and regulations, and establishes management priorities for the installation.

Integrated Cultural Resources Management Plan, Naval Air Weapons Station China Lake, NAVFAC SW (U.S. Navy), Inyo, Kern, and San Bernardino Counties, California (2009–2011). Served as co-author of the final document. The project consists of preparing a management plan for the protection and management of cultural resources located within Naval Air Weapons Station China Lake. The management plan inventories known cultural resources, summarizes relevant laws and regulations, and establishes management priorities for the installation.

Specialized Training

- CEQA and Historic Preservation: A 360 Degree View, CPF, 2015
- Historic Designation and Documentation Workshop, CPF, 2012
- Historic Context Writing Workshop, CPF, 2011
- Section 106 Compliance Training, SWCA, 2010
- CEQA Basics Workshop, SWCA, 2009
- NEPA Basics Workshop, SWCA, 2008
- CEQA, NEPA, and Other Legislative Mandates Workshop, UCLA, 2008

Publications

Gross, C., Melmed, A., Murray, S., Dietler, S., and Gibson, H. 2012. *Osteological Analysis In Not Dead but Gone Before:* The Archaeology of Los Angeles City Cemetery, edited by H. Gibson and S. Dietler, AECOM Cultural Heritage Publication Number 4, San Diego.

Murray, S. 2013. *The People of Plaza Church Cemetery (1822-1844):* An Osteological Analysis of Los Angeles' First Cemetery. UMI Dissertation Publishing, ProQuest LLC., Michigan.

Presentations

Historical Resources under CEQA. Prepared for the Orange County Historic Preservation Planner Working Group. Presented by Samantha Murray, Dudek. December 1, 2016. Delivered a 1-hour PowerPoint presentation to the Orange County Historic Preservation Planner Working Group, which included planners from different municipalities in Orange County, regarding the treatment of historical resources under CEQA. Topics of discussion included identification of historical resources, assessing impacts, avoiding or mitigating impacts, overcoming the challenges associated with impacts to historical resources, and developing effective preservation alternatives.

Knowing What You're Asking For: Evaluation *of Historic Resources*. Prepared for Lorman Education Services. Presented by Samantha Murray and Stephanie Standerfer, Dudek. September 19, 2014. With Ms. Standerfer, delivered a one-hour PowerPoint presentation to paying workshop attendees from various cities and counties in Southern California. The workshop focused on outlining the basics of historical resources under CEQA, and delved into issues/challenges frequently encountered on preservation projects.

APPENDIX B

CONFIDENTIAL

CHRIS Records Search Results

APPENDIX C

Native American Communication

Adriane Dorrler

From:	Adriane Dorrler
Sent:	Tuesday, August 20, 2019 9:27 AM
To:	nahc@nahc.ca.gov
Cc:	Linda Kry
Subject:	Request for a Sacred Lands File Search_Dudek (#10649.04)
Attachments:	10649_04_NAHC SLF_Request_Form.pdf; Fig_Tribal_Info.pdf

Dear NAHC,

Please find attached the NAHC Sacred Lands File Search request and project location map for the proposed De Soto Trunk Line Project (Dudek #10649.04). Dudek is requesting a NAHC search for any sacred sites, tribal cultural resources, or other places of Native American community value that may fall within a one-mile radius of the proposed Project site.

Please let me know if you have any questions regarding this project. You can email the results to me at adorrler@dudek.com.

Thank you in advance,

Adriane Gusick
Associate Archaeologist

DUDEK
mobile: (760) 840-7556
www.dudek.com / www.facebook.com/dudeknews

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: De Soto Trunk Line Replacement Project (Dudek #10649.04)

County: Los Angeles

USGS Quadrangle

Name: Canoga Park and Oat Mountain

Township: 2N, 1N Range: 16W Section(s): 2N/16W:8, 17, 20, 29, and 32; 1N/16W: 8

Company/Firm/Agency:
Dudek

Contact Person: Adriane Gusick

Street Address: 38 N Marengo Avenue

City: Pasadena Zip: 91101

Phone: (760) 840-7556 Extension:

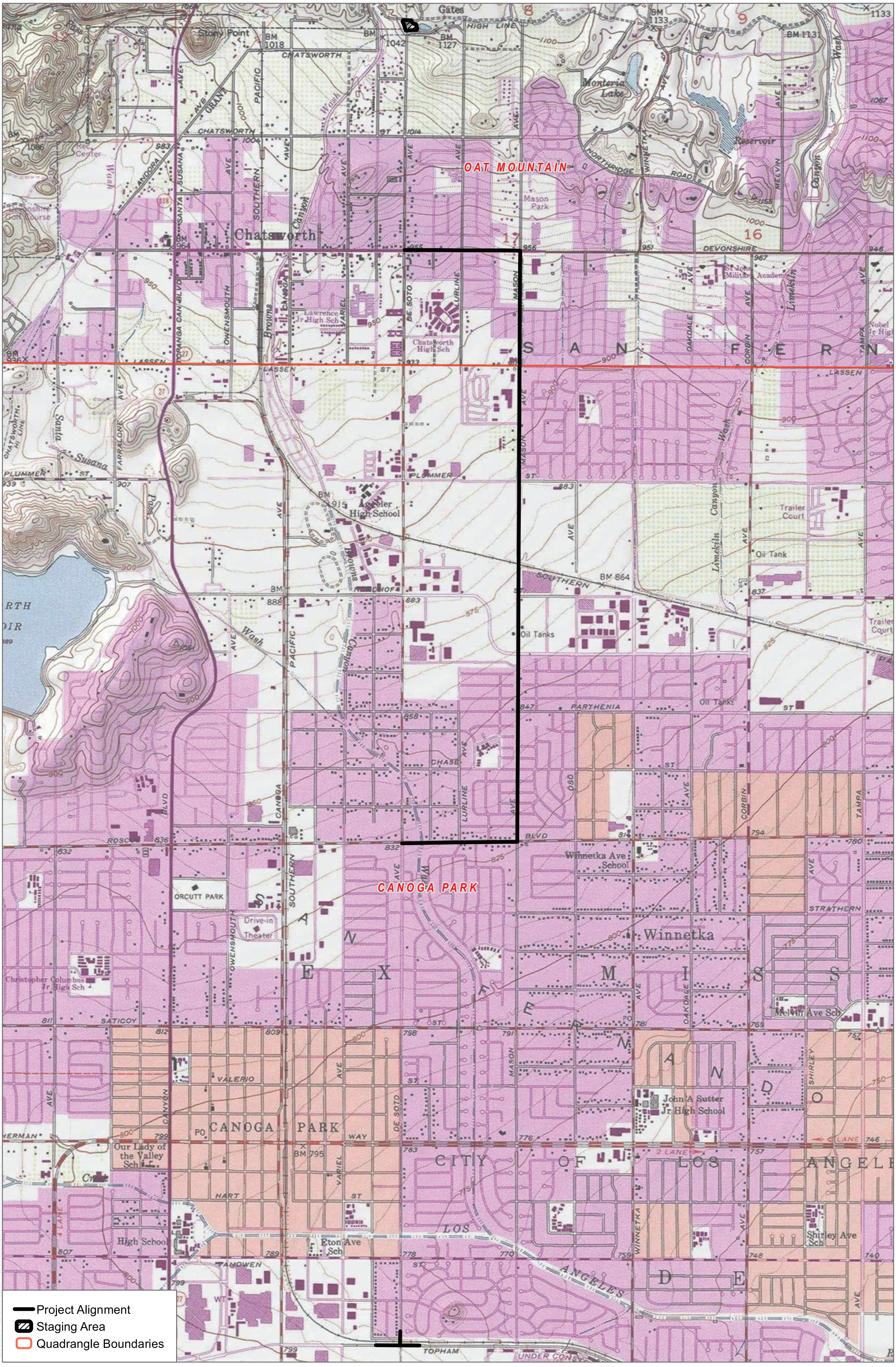
Fax: (760) 632-0164

Email: adorrler@dudek.com

Project Description:

The De Soto Trunk Line Replacement Project (proposed project) is a 54- and 48-inch-diameter welded steel potable water pipeline proposed by the Los Angeles Department of Water and Power (LADWP). The project would involve replacing approximately 13,500 feet (2.6 miles) of the existing riveted steel De Soto Trunk Line, which was installed in 1917, and approximately 2,600 feet (0.5 mile) of the existing high-density polyethylene (HDPE)-lined riveted steel Roscoe Trunk Line, which was installed in 1917 and 1931. Specifically, the proposed project consists of installing approximately 2,600 feet of 54-inch-diameter welded steel pipe along Devonshire Street from De Soto Avenue to Mason Avenue; approximately 13,500 feet of 54-inch-diameter welded steel pipe along Mason Avenue from Devonshire Street to Roscoe Boulevard; approximately 2,600 feet of 48-inch-diameter welded steel pipe along Roscoe Boulevard from Mason Avenue to De Soto Avenue; and approximately 900 feet of 42-inch-diameter and 36-inch-diameter welded steel pipe at the intersection of De Soto Avenue and Victory Boulevard.

☑ Project Location Map is attached



SOURCE: USGS 7.5 Minute Quadrangle

LADWP Los Angeles Department of Water & Power

0 1,000 2,000 Feet
0 280 560 Meters

FIGURE 1

Project Location

De Soto Trunk Line Replacement Project

STATE OF CALIFORNIA **GAVIN NEWSOM, Governor**

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

September 16, 2019

Adriane Gusick
Dudek

VIA Email to: adorrler@dudek.com

RE: De Soto Trunk Line Replacement Project, Los Angeles County

Dear Ms. Gusick:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

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 lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
9/16/2019

Barbareno/Ventureno Band of Mission Indians
Julie Tumamait-Stenslie, Chairperson
365 North Poli Ave
Ojai, CA, 93023
Phone: (805) 646 - 6214
jtumamait@hotmail.com
Chumash

Barbareno/ Ventureno Band of Mission Indians
Eleanor Arrellanes,
P. O. Box 5687
Ventura, CA, 93005
Phone: (805) 701 - 3246
Chumash

Barbareno/ Ventureno Band of Mission Indians
Raudel Banuelos,
331 Mira Flores
Camarillo, CA, 93012
Phone: (805) 427 - 0015
Chumash

Barbareno/ Ventureno Band of Mission Indians
Patrick Tumamait,
992 El Camino Corto
Ojai, CA, 93023
Phone: (805) 216 - 1253
Chumash

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net
Chumash

Coastal Band of the Chumash Nation
Gino Altamirano, Chairperson
P. O. Box 4464
Santa Barbara, CA, 93140
cbcn.consultation@gmail.com
Chumash

Fernandeno Tataviam Band of Mission Indians
Jairo Avila, Tribal Historic and Cultural Preservation Officer
1019 Second Street, Suite 1
San Fernando, CA, 91340
Phone: (818) 837 - 0794
Fax: (818) 837-0796
jairo.avila@tataviam-nsn.us
Tataviam

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org
Gabrieleno

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com
Gabrieleno

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com
Gabrielino

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com
Gabrielino

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com
Gabrielino

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 Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed De Soto Trunk Line Replacement Project, Los Angeles County.

Native American Heritage Commission
Native American Contact List
Los Angeles County
9/16/2019

Northern Chumash Tribal Council Fred Collins, Spokesperson P.O. Box 6533 Los Osos, CA, 93412 Phone: (805) 801 - 0347 fcollins@northernchumash.org	Chumash
San Fernando Band of Mission Indians Donna Yocum, Chairperson P.O. Box 221838 Newhall, CA, 91322 Phone: (503) 539 - 0933 Fax: (503) 574-3308 ddyocum@comcast.net	Kitanemuk Vanyume Tataviam
San Luis Obispo County Chumash Council Mark Vigil, Chief 1030 Ritchie Road Grover Beach, CA, 93433 Phone: (805) 481 - 2461 Fax: (805) 474-4729	Chumash
Santa Ynez Band of Chumash Indians Kenneth Kahn, Chairperson P.O. Box 517 Santa Ynez, CA, 93460 Phone: (805) 688 - 7997 Fax: (805) 686-9578 kkahn@santaynezchumash.org	Chumash
yak tityu tityu yak tiłhini – Northern Chumash Tribe Mona Tucker, Chairperson 660 Camino Del Rey Arroyo Grande, CA, 93420 Phone: (805) 748 - 2121 olivas.mona@gmail.com	Chumash

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 Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed De Soto Trunk Line Replacement Project, Los Angeles County.

EXAMPLE

The following provides an example Tribal Outreach Letter sent to the NAHC listed contacts

38 NORTH MARENGO AVENUE
PASADENA, CALIFORNIA 91101
T 626.204.9800 F 626.204.9834

September 24, 2019

«HONORIFIC_TITLE» «FIRST_NAME» «LAST_NAME», «TITLE»
«COMPANYORGANIZATION»
«ADDRESS»
«CITY», «STATE» «ZIP»

Subject: ***Cultural Resources Report for the De Soto Trunk Line Replacement Project, City of Los Angeles, Los Angeles County, California***

Dear «HONORIFIC_TITLE» «LAST_NAME»:

Dudek was retained by Los Angeles Department of Water and Power (LADWP) to conduct a cultural resources study in support of the proposed De Soto Trunk Line Replacement Project (proposed Project) located in the western portion of the San Fernando Valley within the City of Los Angeles (City). The proposed Project consists of installing approximately 2,600 feet of 54-inch-diameter welded steel pipe along Devonshire Street from De Soto Avenue to Mason Avenue; approximately 13,500 feet of 54-inch-diameter welded steel pipe along Mason Avenue from Devonshire Street to Roscoe Boulevard; approximately 2,600 feet of 48-inch-diameter welded steel pipe along Roscoe Boulevard from Mason Avenue to De Soto Avenue; and approximately 900 feet of 42-inch-diameter and 36-inch-diameter welded steel pipe at the intersection of De Soto Avenue and Victory Boulevard. The proposed Project falls on Public Land Survey System Township 2 North, Range 16 West, within Sections 8 and 17 of the *Oat Mountain*, CA 7.5-minute USGS Quadrangle and Townships 1 and 2 North, Range 16 West, within Sections 7, 8, 20, 29, and 32 of the *Canoga Park*, CA 7.5-minute USGS Quadrangle (see attached Figure 1).

A California Historical Resources Information System records search was completed at the South Central Coastal Information Center (SCCIC) for the proposed Project alignment and surrounding 0.5-mile radius. The SCCIC records indicate that no previously recorded cultural resources exist within or adjacent to the proposed Project alignment. There are a total of eight previously recorded cultural resources within 0.5-mile of the proposed Project alignment. Of these resources, five consist of prehistoric archaeological sites, two are historic-age homestead sites, and one is a built environment resource consisting of a religious building. The five prehistoric resources include two habitation sites and three lithic scatters. The proposed Project is not anticipated to affect these resources since they are not located on or adjacent to the proposed Project alignment.

Dudek contacted the California Native American Heritage Commission (NAHC) to request a Sacred Lands File (SLF) search and a list of Native American individuals and/or tribal organizations who may have knowledge of cultural resources in or near the proposed Project alignment. The NAHC emailed a response on September 16, 2019, stating that the SLF was completed with negative results.

The NAHC recommended that we contact you regarding your knowledge of the presence of cultural resources that may be impacted by this proposed Project. If you have any knowledge of cultural resources that may exist within or near the proposed Project alignment, please contact me directly either by phone at (760) 840-7556, by email at adorrler@dudek.com, or by mail at 38 North Marengo Avenue, Pasadena, CA, 91101 within 30 days of receipt of this letter.

Please note that the request herein is for informational purposes only and does not constitute Assembly Bill (AB) 52 notification or initiation of consultation. All information provided will be included in the cultural resources study.

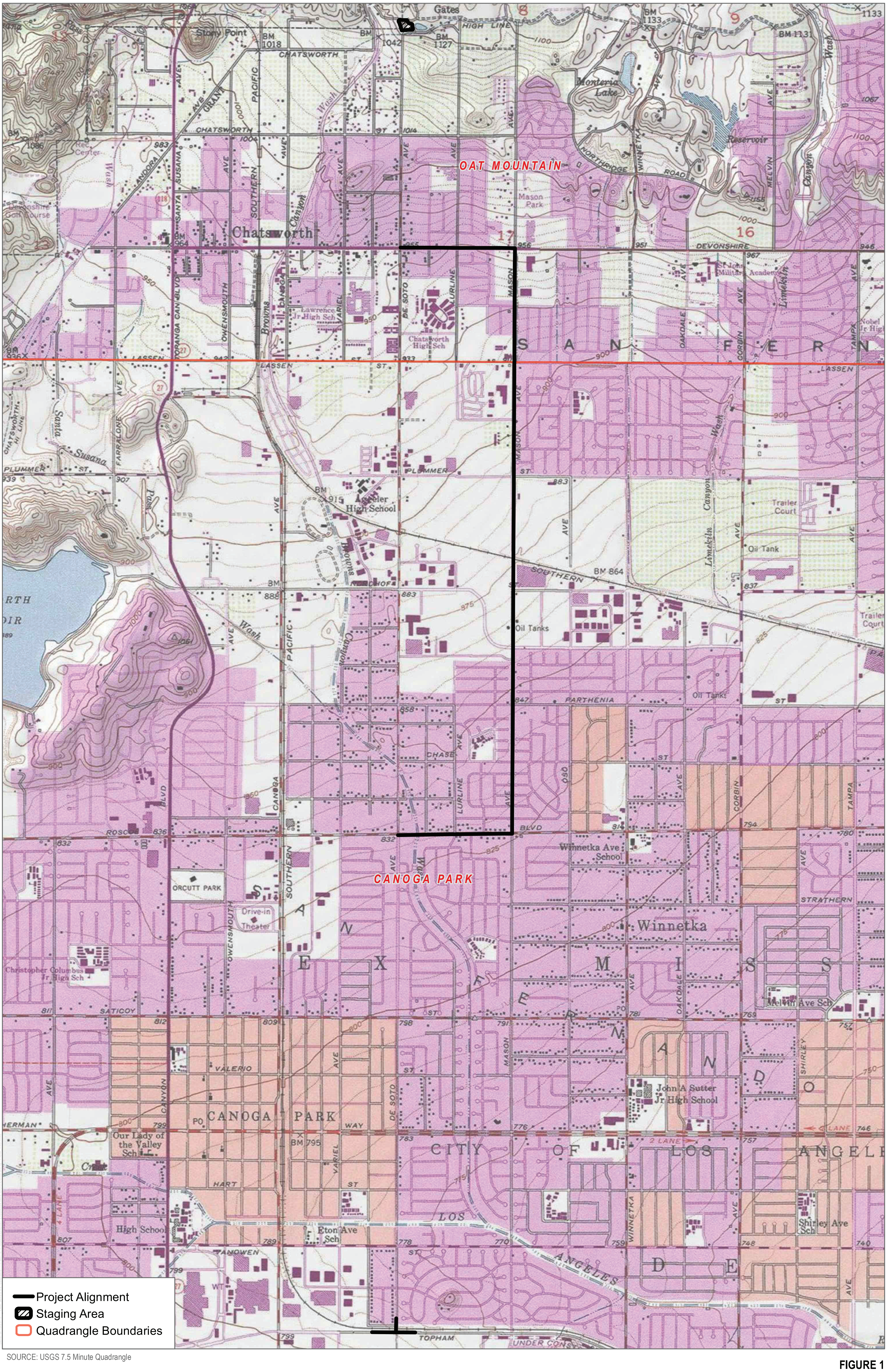
Thank you for your assistance.

Sincerely,

A. Dorrler

Adriane Dorrler
Associate Archaeologist

Attachment: *Figure 1 Project Location Map*



SOURCE: USGS 7.5 Minute Quadrangle

Los Angeles Department of Water & Power

FIGURE 1

Project Location

De Soto Trunk Line Replacement Project

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1. Article Addressed to:

Mr. Jairo Avila, Tribal Historic and Cultural Preservation Officer
Fernandeno Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, CA 91340

9590 9402 2612 6336 7627 05

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2737

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A. Signature
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☐ Agent
☐ Addressee

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1. Article Addressed to:

Mr. Gino Altamirano, Chairperson
Coastal Band of the Chumash Nation
P.O. Box 4464
Santa Barbara, CA 93140

9590 9402 2612 6336 7648 39

7019 1120 0000 3597 2669

COMPLETE THIS SECTION ON DELIVERY

A. Signature
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☑ Agent
☐ Addressee

B. Received by *(Printed Name)*
Michael D. Madisz-[illegible]

C. Date of Delivery
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1. Article Addressed to:

Mr. Raudel Banuelos,
Barbareno/Ventureno Band of Mission Indians
331 Mira Flores
Camarillo, CA 93012

9590 9402 2612 6336 7626 51

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2683

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A. Signature
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☑ Agent
☐ Addressee

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1. Article Addressed to:

Mr. Patrick Tumamait
Barbareno/Ventureno Band of Mission Indians
992 El Camino Corto
Ojai, CA 93023

9590 9402 2612 6336 7626 37

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2805

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☑ Agent
☐ Addressee

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1. Article Addressed to:

Ms. Sandonne Goad, Chairperson
Gabrielino-Tongva Nation
106 1/2 Judge John Aiso St.
Los Angeles, CA 90012

9590 9402 2612 6336 7627 29

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2751

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☐ Agent
☐ Addressee

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1. Article Addressed to:

Mr. Julio Quair, Chairperson
Chumash Council of Bakersfield
729 Texas St.
Bakersfield, CA 93307

9590 9402 2612 6336 7627 50

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2782

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Robert A Quair

☒ Agent
☐ Addressee

B. Received by *(Printed Name)* Robert Quair

C. Date of Delivery 10/9/19

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If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

Mr. Kenneth Kahn, Chairperson
Santa Ynez Band of Chumash Indians
P.O. Box 517
Santa Ynez, CA 93460

9590 9402 2612 6336 7627 36

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2768

COMPLETE THIS SECTION ON DELIVERY

A. Signature

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☐ Agent
☐ Addressee

B. Received by *(Printed Name)* K Anderson

C. Date of Delivery

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1. Article Addressed to:

Ms. Julie Tumamait-Stenslie, Chairperson
Barbareno/Ventureno Band of Mission Indians
365 North Poli Ave
Ojai, CA 93023

9590 9402 2612 6336 7508 87

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2812

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Julie Stenslie

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

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1. Article Addressed to:

Mr. Mark Vigil, Chief
San Luis Obispo County Chumash Council
1030 Ritchie Road
Grover Beach, CA 93433

9590 9402 2612 6336 7626 99

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2720

COMPLETE THIS SECTION ON DELIVERY

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☐ Agent
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1. Article Addressed to:

Mr. Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA 91778

9590 9402 2612 6336 7627 43

2. Article Number *(Transfer from service label)*

7019 1120 0000 3595 9165

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, CA 90707

9590 9402 2612 6336 7627 12

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2744

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☐ Agent
☐ Addressee

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C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

9590 9402 2612 6336 7648 46

2. Article Number *(Transfer from service label)*

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C. Date of Delivery
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- Print your name and address on the reverse so that we can return the card to you.
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1. Article Addressed to:

Ms. Donna Yocum, Chairperson
San Fernando Band of Mission Indians
P.O. Box 221838
Newhall, CA 91322

9590 9402 2612 6336 7508 94

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2829

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B. Received by *(Printed Name)*

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1. Article Addressed to:

Mr. Fred Collins, Spokesperson
Northern Chumash Tribal Council
P.O. Box 6533
Los Osos, CA 93412

9590 9402 2612 6336 7626 82

2. Article Number *(Transfer from service label)*

7019 1120 0000 3597 2713

COMPLETE THIS SECTION ON DELIVERY

A. Signature
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B. Received by *(Printed Name)* Fred Collin

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If YES, enter delivery address below: ☐ No

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RETURN RECEIPT
REQUESTED

Mr. Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen St.
West Hills, CA 91307

10/9

RET: 10/24/19

93081897713111747

ANK

[redacted]

[redacted]

From: Administration Gabrieleno <admin@gabrielenoindians.org>
Sent: Tuesday, October 15, 2019 1:59 PM
To: Adriane Dorrler
Subject: De Soto Trunk Line Replacement Project in the City of Los Angeles
Attachments: De Soto Trunk Line Replacement Project.pdf

please see attachment

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

Attachments area

GABRIELENO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Project Name: De Soto Trunk Line Replacement Project, in the City of Los Angeles

Dear Adriane Dorrler,

Thank you for your letter dated October 4, 2019 regarding your request for information pertaining to the above project. The above proposed project location is within our Ancestral Tribal Territory; therefore, our Tribal Government engages in AB52 consultation with the lead agency. This government to government consultation is intended to comply with AB52 regulations regarding confidential information. Therefore, as mandated by the State of California under Public Resources Code section 21082.3 (c), we do not share our tribal information with third party businesses. Please inform your project's lead agency to schedule an AB52 consultation with our tribal government at its earliest convenience

Thank you for your time,

Andrew Salas, Chairman
Gabrieleno Band of Mission Indians – Kizh Nation
1 (844) 390-0787

PERSONAL COMMUNICATION RECORD

Communication With:	Eleanor Arrellanes – Barbareno/Ventureno Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	12:50 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

---

Communication Summary

There was no answer when I called Ms. Arrellanes. I left a voicemail for Ms. Arrellanes to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if she had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Raudel Banuelos – Barbareno/Ventureno Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	12:52 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Mr. Banuelos. I left a voicemail for Mr. Banuelos to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Julie Tumamait-Stenslie – Barbareno/Ventureno Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	12:35 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

---

Communication Summary

Chairperson Tumamait-Stenslie commented that the Project area is not within her tribal territory or area and does not have a comment on the Project.

PERSONAL COMMUNICATION RECORD

Communication With:	Julio Quair – Chumash Council of Bakersfield
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	12:54 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

---

Communication Summary

There was no answer when I called Chairperson Quair. His inbox memory was full and I was unable to leave a message.

PERSONAL COMMUNICATION RECORD

Communication With:	Anthony Morales – Gabrieleno/Tongva San Gabriel Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:26 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

Mr. Morales feels that the project area would have prehistorically been a heavily traveled route and should be treated as sensitive. His explained that his beliefs are based on oral histories.

Mr. Morales believes that any original pipelines within the area were most likely placed a "very long time ago", a time before CEQA and when archaeological resources were not always recorded.

Mr. Morales feels the area should be monitored during ground disturbance by a Native American Monitor and an Archaeological Monitor. He would like for his tribe, Gabrieleno/Tongva San Gabriel Band of Mission Indians, be included if tribal monitoring takes place.

PERSONAL COMMUNICATION RECORD

Communication With:	Charles Alvarez – Gabrielino-Tongva Tribe
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:52 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Mr. Alvarez. I left a voicemail for Mr. Alvarez to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Robert Dorame – Gabrielino Tongva Indians of California Tribal Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:50 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

There was no answer when I called Chairperson Dorame. I left a voicemail for Chairperson Dorame to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if they had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Sandonne Goad – Gabrielino/Tongva Nation
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:48 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Chairperson Goad. I left a voicemail for Chairperson Goad to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if they had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Fred Collins – Northern Chumash Tribal Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:54 pm
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

There was no answer when I called Spokesperson Collins. I left a voicemail for Spokesperson Collins to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if they had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Mona Tucker - yak tityu tityu yak tiłhini – Northern Chumash Tribe
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	2:03
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

Chairperson Tucker stated that the Project is not within her tribal homeland. She recommended we reach out to the indigenous tribe that is in the Project area.

PERSONAL COMMUNICATION RECORD

Communication With:	Donna Yocum – San Fernando Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:57 pm
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

Chairperson Yocum defers to the Gabrielino Tribe.

PERSONAL COMMUNICATION RECORD

Communication With:	Mark Vigil – San Luis Obispo County Chumash Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 1, 2019
Communication Time:	1:59 pm
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

When I called the phone number provided by the Native American Heritage Commission (805.481.2461), there was a notification that the number was no longer in service.

PERSONAL COMMUNICATION RECORD

Communication With: Willie Wyatt – Santa Ynez Band of Chumash Indians
Dudek Participant: Jennifer De Alba
Communication Date: November 1, 2019
Communication Time: 2:00 pm
Communication Type: Phone Call
Subject: De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

When I called the number proved by the NAHC to reach Kenneth Kahn, I was informed that the person to speak to in regards to the Project was Willie Wyatt. I was then transferred to Mr. Wyatt and reached his voicemail. I left a message with Mr. Wyatt to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Eleanor Arrellanes – Barbareno/Ventureno Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	10:45am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Ms. Arrellanes. I left a voicemail for Ms. Arrellanes to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if she had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Raudel Banuelos – Barbareno/Ventureno Band of Mission Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	10:47am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

There was no answer when I called Mr. Banuelos. I left a voicemail for Mr. Banuelos to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Julio Quair – Chumash Council of Bakersfield
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	10:50 am
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

There was no answer when I called Chairperson Quair. His inbox memory was full and I was unable to leave a message.

PERSONAL COMMUNICATION RECORD

Communication With:	Charles Alvarez – Gabrielino-Tongva Tribe
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	11:45 am
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

There was no answer when I called Mr. Alvarez. I left a voicemail for Mr. Alvarez to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With: Robert Dorame – Gabrielino Tongva Indians of California Tribal Council
Dudek Participant: Jennifer De Alba
Communication Date: November 8, 2019
Communication Time: 10:54am
Communication Type: Phone Call
Subject: De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

Chairperson Dorame inquired about the project and requested we resend the consultation letter. He would like to review his tribal records to see if there are any cultural resources that have not been reported to the Native American Heritage Commission or the California Historical Resources Information System.

In the event that we do not hear back from his tribe, he would like to be notified if any cultural resources are uncovered that pertain to the Gabrielino-Tongva.

PERSONAL COMMUNICATION RECORD

Communication With:	Sandonne Goad – Gabrielino/Tongva Nation
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	10:51 am
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Chairperson Goad. I left a voicemail for Chairperson Goad to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if they had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Fred Collins – Northern Chumash Tribal Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	11:47 am
Communication Type:	Phone call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

Communication Summary

There was no answer when I called Spokesperson Collins. I left a voicemail for Spokesperson Collins to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if they had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Robert Dorame – Gabrielino Tongva Indians of California Tribal Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	10:54am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

---

Communication Summary

Chairperson Dorame inquired about the project and requested we resend the consultation letter. He would like to review his tribal records to see if there are any cultural resources that have not been reported to the Native American Heritage Commission or the California Historical Resources Information System.

In the event that we do not hear back from his tribe, he would like to be notified if any cultural resources are uncovered that pertain to the Gabrielino-Tongva.

PERSONAL COMMUNICATION RECORD

Communication With:	Mark Vigil – San Luis Obispo County Chumash Council
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	11:49am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

When I called the phone number provided by the Native American Heritage Commission (805.481.2461), there was a notification that the number was no longer in service.

PERSONAL COMMUNICATION RECORD

Communication With:	Willie Wyatt – Santa Ynez Band of Chumash Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 8, 2019
Communication Time:	11:50am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, City of Los Angeles

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Communication Summary

When I called the number proved by the NAHC to reach Kenneth Kahn, I was informed that the person to speak to in regards to the Project was Willie Wyatt. I was then transferred to Mr. Wyatt and reached his voicemail. I left a message with Mr. Wyatt to contact either myself at 805.308.8535, or Linda Kry at 626.204.9837 if he had any comments.

PERSONAL COMMUNICATION RECORD

Communication With:	Freddie Romero – Santa Ynez Band of Chumash Indians
Dudek Participant:	Jennifer De Alba
Communication Date:	November 14, 2019
Communication Time:	10:05am
Communication Type:	Phone Call
Subject:	De Soto Trunk Line Replacement Project, Los Angeles

Communication Summary

In his phone call with Ms. De Alba, Mr. Romero stated that he has no comment on the Project and defers to the local tribes.

From: Jennifer De Alba
Sent: Friday, November 8, 2019 1:26 PM
To: cbcn.consultation@gmail.com
Cc: Linda Kry
Subject: De Soto Trunk Line Replacement Project Information Request
Attachments: De Soto Trunk Line Replacement Request.pdf

Hello Mr. Altamirano,

This is a follow-up email to the letter sent, via certified mail, on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

Adriane Gusick

From: Jennifer De Alba
Sent: Friday, November 8, 2019 12:38 PM
To: roadkingcharles@aol.com
Cc: Linda Kry
Subject: De Soto Trunk Line Replacement Project Information Request
Attachments: De Soto Trunk Line Information Request.pdf

Hello Mr. Alvarez

This is a follow-up email to the letter sent, via certified mailing, out on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

From: Jennifer De Alba
Sent: Friday, November 8, 2019 12:47 PM
To: fcollins@northernchumash.org
Cc: Linda Kry
Subject: De Soto Trunk Line Replacement Project Information Request
Attachments: De Soto Trunk Line Replacment Request.pdf

Hello Mr. Collins,

This is a follow-up email to the letter sent, via certified mail, on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

Adriane Gusick

From:	Jennifer De Alba
Sent:	Tuesday, November 19, 2019 3:32 PM
To:	Adriane Gusick
Subject:	Fwd: Information Request for De Soto Trunk Line Replacement Project, City of Los Angeles
Attachments:	De Soto Trunk Line Replacement Project Information Request.pdf

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From: Jennifer De Alba
Sent: Friday, November 8, 2019 11:41:33 AM
To: gtongva@gmail.com <gtongva@gmail.com>
Cc: Linda Kry <lkry@dudek.com>
Subject: Information Request for De Soto Trunk Line Replacement Project, City of Los Angeles

Hello Chairperson Dorame,

Per your request during my follow-up call today, November 8, 2019, for the De Soto Trunk Line Replacement Project located within the City of Los Angeles, I am resending you the letter sent out on October 4, 2019. We are interested in learning if you have knowledge of any cultural or heritage resources on the project site. Please note that the request is for informational purposes only and does not constitute Assembly Bill 52 notification or initiation of consultation.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

From:	Jennifer De Alba
Sent:	Friday, November 8, 2019 1:02 PM
To:	sgoad@gabrielino-tonga.com
Cc:	Linda Kry
Subject:	De Soto Trunk Line Replacement Project Request
Attachments:	De Soto Trunk Line Replacemnet Request.pdf

Hello Chairperson Goad,

This is a follow-up email to the letter sent, via certified mailing, on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

Adriane Gusick

From:	Jennifer De Alba
Sent:	Friday, November 8, 2019 1:11 PM
To:	kkahn@santaynezchumash.org
Cc:	Linda Kry
Subject:	De Soto Trunk Line Replacement Project Information Request
Attachments:	De Soto Trunk Line Replacement Request.pdf

Hello Mr. Kahn,

This is a follow-up email to the letter sent, via certified mailing, on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

From:	Jennifer De Alba
Sent:	Friday, November 8, 2019 1:20 PM
To:	chumashtribe@sbcglobal.net
Cc:	Linda Kry
Subject:	De Soto Trunk Line Replacement Project Information Request
Attachments:	De Soto Trunk Line Replacemnet Project Request.pdf

Hello Mr. Quair,

This is a follow-up email to the letter sent, via certified mail, on October 4, 2019 for the De Soto Trunk Line Replacement Project, located within the city of Los Angeles.
There have been two follow-up phone calls to date made on November 1, 2019 and November 8, 2019, however we have been able to make contact.
I am attaching to this email a copy of the letter sent out back in October.
We are interested in learning if you have knowledge of any cultural or heritage resources on the project site.

Thank you,

Jennifer De Alba
Associate Archaeologist
DUDEK
Cultural Environmental
Office: (805) 308-8535
Cell: (805) 448-5529

APPENDIX D

Noise Analysis Data

Roadway Construction Noise Model (RCNM),Version 1.1

Report date:	9/17/2019
Case Description:	De Soto Ave_Open-Trench Pipe Installation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Receiver 20'	Residential	65	60	55

			Equipment			
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	20	0
Crane	No	16		80.6	20	0
Crane	No	16		80.6	40	0
Generator	No	50		80.6	40	0
Backhoe	No	40		77.6	60	0
Welder / Torch	No	40		74	60	0
Paver	No	50		77.2	80	0
Concrete Saw	No	20		89.6	80	0
Compactor (ground)	No	20		83.2	60	0
Roller	No	20		80	80	0
Man Lift	No	20		74.7	80	0
Compressor (air)	No	40		77.7	100	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		88.7	84.7	N/A	N/A	N/A	N/A
Crane		88.5	80.6	N/A	N/A	N/A	N/A
Crane		82.5	74.5	N/A	N/A	N/A	N/A
Generator		82.6	79.6	N/A	N/A	N/A	N/A
Backhoe		76	72	N/A	N/A	N/A	N/A
Welder / Torch		72.4	68.4	N/A	N/A	N/A	N/A
Paver		73.1	70.1	N/A	N/A	N/A	N/A
Concrete Saw		85.5	78.5	N/A	N/A	N/A	N/A
Compactor (ground)		81.6	74.7	N/A	N/A	N/A	N/A
Roller		75.9	68.9	N/A	N/A	N/A	N/A
Man Lift		70.6	63.6	N/A	N/A	N/A	N/A
Compressor (air)		71.6	67.7	N/A	N/A	N/A	N/A
	Total	88.7	88.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Typical Receiver 250'	Residential	65	60	55

			Equipment			
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	250	0
Crane	No	16		80.6	250	0
Crane	No	16		80.6	250	0
Generator	No	50		80.6	250	0
Backhoe	No	40		77.6	250	0

Welder / Torch	No	40		74	250	0
Paver	No	50		77.2	250	0
Concrete Saw	No	20		89.6	250	0
Compactor (ground)	No	20		83.2	250	0
Roller	No	20		80	250	0
Man Lift	No	20		74.7	250	0
Compressor (air)	No	40		77.7	250	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		66.7	62.8	N/A	N/A	N/A	N/A
Crane		66.6	58.6	N/A	N/A	N/A	N/A
Crane		66.6	58.6	N/A	N/A	N/A	N/A
Generator		66.7	63.6	N/A	N/A	N/A	N/A
Backhoe		63.6	59.6	N/A	N/A	N/A	N/A
Welder / Torch		60	56	N/A	N/A	N/A	N/A
Paver		63.2	60.2	N/A	N/A	N/A	N/A
Concrete Saw		75.6	68.6	N/A	N/A	N/A	N/A
Compactor (ground)		69.3	62.3	N/A	N/A	N/A	N/A
Roller		66	59	N/A	N/A	N/A	N/A
Man Lift		60.7	53.7	N/A	N/A	N/A	N/A
Compressor (air)		63.7	59.7	N/A	N/A	N/A	N/A
	Total	75.6	72.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/17/2019
Case Description: De Soto Ave_Construction of Jacking and Receiving Pits

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Receiver 20'	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	20	0
Crane	No	16		80.6	20	0
Crane	No	16		80.6	40	0
Generator	No	50		80.6	40	0
Backhoe	No	40		77.6	40	0
Front End Loader	No	40		79.1	40	0
Welder / Torch	No	40		74	60	0
Paver	No	50		77.2	60	0
Concrete Saw	No	20		89.6	80	0
Compactor (ground)	No	20		83.2	80	0
Roller	No	20		80	80	0
Man Lift	No	20		74.7	100	0
Compressor (air)	No	40		77.7	100	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	88.7	84.7	N/A	N/A	N/A	N/A
Crane	88.5	80.6	N/A	N/A	N/A	N/A

Crane		82.5	74.5	N/A	N/A	N/A	N/A
Generator		82.6	79.6	N/A	N/A	N/A	N/A
Backhoe		79.5	75.5	N/A	N/A	N/A	N/A
Front End Loader		81	77.1	N/A	N/A	N/A	N/A
Welder / Torch		72.4	68.4	N/A	N/A	N/A	N/A
Paver		75.6	72.6	N/A	N/A	N/A	N/A
Concrete Saw		85.5	78.5	N/A	N/A	N/A	N/A
Compactor (ground)		79.1	72.2	N/A	N/A	N/A	N/A
Roller		75.9	68.9	N/A	N/A	N/A	N/A
Man Lift		68.7	61.7	N/A	N/A	N/A	N/A
Compressor (air)		71.6	67.7	N/A	N/A	N/A	N/A
	Total	88.7	88.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Typical Receiver 250'	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	250	0
Crane	No	16		80.6	250	0
Crane	No	16		80.6	250	0
Generator	No	50		80.6	250	0
Backhoe	No	40		77.6	250	0
Front End Loader	No	40		79.1	250	0
Welder / Torch	No	40		74	250	0
Paver	No	50		77.2	250	0
Concrete Saw	No	20		89.6	250	0
Compactor (ground)	No	20		83.2	250	0
Roller	No	20		80	250	0
Man Lift	No	20		74.7	250	0
Compressor (air)	No	40		77.7	250	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		66.7	62.8	N/A	N/A	N/A	N/A
Crane		66.6	58.6	N/A	N/A	N/A	N/A
Crane		66.6	58.6	N/A	N/A	N/A	N/A
Generator		66.7	63.6	N/A	N/A	N/A	N/A
Backhoe		63.6	59.6	N/A	N/A	N/A	N/A
Front End Loader		65.1	61.2	N/A	N/A	N/A	N/A
Welder / Torch		60	56	N/A	N/A	N/A	N/A
Paver		63.2	60.2	N/A	N/A	N/A	N/A
Concrete Saw		75.6	68.6	N/A	N/A	N/A	N/A
Compactor (ground)		69.3	62.3	N/A	N/A	N/A	N/A
Roller		66	59	N/A	N/A	N/A	N/A
Man Lift		60.7	53.7	N/A	N/A	N/A	N/A
Compressor (air)		63.7	59.7	N/A	N/A	N/A	N/A
	Total	75.6	73.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/17/2019

Case Description: De Soto Ave_Pipe Installation Via Jacking

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Receiver 20'	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	20	0
Drill Rig Truck	No	20		79.1	20	0
Generator	No	50		80.6	40	0
Pumps	No	50		80.9	40	0
Pumps	No	50		80.9	60	0
Crane	No	16		80.6	60	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		88.7	84.7	N/A	N/A	N/A	N/A
Drill Rig Truck		87.1	80.1	N/A	N/A	N/A	N/A
Generator		82.6	79.6	N/A	N/A	N/A	N/A
Pumps		82.9	79.9	N/A	N/A	N/A	N/A
Pumps		79.4	76.3	N/A	N/A	N/A	N/A
Crane		79	71	N/A	N/A	N/A	N/A
	Total	88.7	88.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Typical Receiver 250'	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	250	0
Drill Rig Truck	No	20		79.1	250	0
Generator	No	50		80.6	250	0
Pumps	No	50		80.9	250	0
Pumps	No	50		80.9	250	0
Crane	No	16		80.6	250	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		66.7	62.8	N/A	N/A	N/A	N/A
Drill Rig Truck		65.2	58.2	N/A	N/A	N/A	N/A
Generator		66.7	63.6	N/A	N/A	N/A	N/A
Pumps		67	64	N/A	N/A	N/A	N/A
Pumps		67	64	N/A	N/A	N/A	N/A
Crane		66.6	58.6	N/A	N/A	N/A	N/A
	Total	67	70.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX E

Traffic Analysis Data

- Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

T517

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC1496
Tue, Oct 17, 17	NORTH & SOUTH:	De Soto	LOCATION #:	1
	EAST & WEST:	Devonshire	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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N
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☑dd U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
			De Soto			De Soto			Devonshire			Devonshire							
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	2	3	0	2	3	0	2	2	0	2	2	1		X	X	X	X	
AM	7:00 AM	14	262	16	22	371	19	57	105	17	37	87	34	1,041	0	0	0	0	0
	7:15 AM	34	213	17	19	283	18	62	188	30	39	172	19	1,094	0	0	0	0	0
	7:30 AM	53	252	26	20	310	20	61	219	20	52	190	24	1,247	0	0	0	0	0
	7:45 AM	23	213	32	20	303	30	81	238	32	70	222	21	1,285	0	0	0	0	0
	8:00 AM	21	219	15	21	331	22	51	130	21	75	176	23	1,105	0	0	0	0	0
	8:15 AM	25	206	17	18	287	20	50	141	27	75	125	27	1,018	0	0	0	0	0
	8:30 AM	15	229	29	19	334	24	36	113	30	62	128	23	1,042	0	0	0	0	0
	8:45 AM	14	193	15	16	280	24	34	132	34	49	136	25	952	0	0	0	0	0
	9:00 AM	21	196	15	18	311	20	36	118	25	35	126	24	945	0	0	0	0	0
	9:15 AM	23	196	11	22	272	37	33	128	28	45	109	16	920	0	0	0	0	0
	9:30 AM	19	244	18	25	276	28	39	79	36	16	93	15	888	0	0	0	0	0
	9:45 AM	22	181	11	23	275	33	45	94	23	32	105	20	864	0	0	0	0	0
	VOLUMES	284	2,604	222	243	3,633	295	585	1,685	323	587	1,669	271	12,401	0	0	0	0	0
	APPROACH %	9%	84%	7%	6%	87%	7%	23%	65%	12%	23%	66%	11%						
	APP/DEPART	3,110	/	3,460	4,171	/	4,543	2,593	/	2,150	2,527	/	2,248	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	131	897	90	80	1,227	90	255	775	103	236	760	87	4,731					
	APPROACH %	12%	80%	8%	6%	88%	6%	23%	68%	9%	22%	70%	8%						
	PEAK HR FACTOR		0.844			0.934			0.807			0.865		0.920					
	APP/DEPART	1,118	/	1,239	1,397	/	1,566	1,133	/	945	1,083	/	981	0					
PM	03:00 PM	23	323	25	29	251	37	50	158	19	27	116	32	1,090	0	0	0	0	0
	3:15 PM	34	278	27	26	218	37	47	166	28	35	129	29	1,054	0	0	0	0	0
	3:30 PM	26	348	20	33	216	44	59	152	35	29	149	30	1,141	0	0	0	0	0
	3:45 PM	31	320	18	38	217	32	55	152	27	39	160	27	1,116	0	0	0	0	0
	4:00 PM	29	369	28	48	259	37	45	144	26	33	133	32	1,183	0	0	0	0	0
	4:15 PM	33	336	25	33	221	49	64	148	32	28	154	25	1,148	0	0	0	0	0
	4:30 PM	30	347	31	39	259	38	64	169	26	26	136	25	1,190	0	0	0	0	0
	4:45 PM	40	317	25	39	224	39	77	186	26	29	156	35	1,193	0	0	0	0	0
	5:00 PM	31	360	23	35	257	43	61	179	28	28	147	25	1,217	0	0	0	0	0
	5:15 PM	34	334	21	49	238	43	102	208	28	35	167	34	1,293	0	0	0	0	0
	5:30 PM	38	373	27	46	231	39	64	148	25	38	155	42	1,226	0	0	0	0	0
	5:45 PM	26	315	20	48	230	59	72	193	35	31	178	37	1,244	0	0	0	0	0
	VOLUMES	375	4,020	290	463	2,821	497	760	2,003	335	378	1,780	373	14,095	0	0	0	0	0
	APPROACH %	8%	86%	6%	12%	75%	13%	25%	65%	11%	15%	70%	15%						
	APP/DEPART	4,685	/	5,153	3,781	/	3,534	3,098	/	2,756	2,531	/	2,652	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	129	1,382	91	178	956	184	299	728	116	132	647	138	4,980					
	APPROACH %	8%	86%	6%	14%	73%	14%	26%	64%	10%	14%	71%	15%						
	PEAK HR FACTOR		0.914			0.978			0.845			0.932		0.963					
	APP/DEPART	1,602	/	1,819	1,318	/	1,204	1,143	/	997	917	/	960	0					

De Soto

NORTH SIDE

Devonshire WEST SIDE

EAST SIDE **Devonshire**

SOUTH SIDE

De Soto

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	5	0	0	6	1	3	0	0	4	0	1	0	0	1	0	1	0	0	1
	7:15 AM	1	14	1	5	21	0	4	0	3	7	0	1	0	0	1	1	9	1	2	13
	7:30 AM	4	9	1	3	17	3	3	1	3	10	1	0	0	0	1	0	6	0	0	6
	7:45 AM	0	5	0	1	6	0	5	0	1	6	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	2	0	4	6	0	1	0	4	5	0	1	0	0	1	0	0	0	0	0
	8:15 AM	5	7	1	2	15	5	4	1	1	11	0	2	0	1	3	0	1	0	0	1
	8:30 AM	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:45 AM	0	5	1	5	11	0	3	1	4	8	0	2	0	1	3	0	0	0	0	0
	9:00 AM	0	5	0	1	6	0	4	0	1	5	0	0	0	0	0	0	1	0	0	1
	9:15 AM	4	6	0	2	12	4	4	0	2	10	0	2	0	0	2	0	0	0	0	0
	9:30 AM	1	0	0	3	4	1	0	0	2	3	0	0	0	1	1	0	0	0	0	0
	9:45 AM	1	5	0	2	8	0	0	0	0	0	1	5	0	2	8	0	0	0	0	0
	TOTAL	17	65	4	28	114	14	32	3	21	70	2	15	0	5	22	1	18	1	2	22
PM	3:00 PM	1	7	0	2	10	1	4	0	2	7	0	3	0	0	3	0	0	0	0	0
	3:15 PM	2	11	1	3	17	1	4	1	2	8	1	2	0	1	4	0	5	0	0	5
	3:30 PM	1	4	0	5	10	1	2	0	3	6	0	2	0	0	2	0	0	0	2	2
	3:45 PM	5	1	0	4	10	4	0	0	3	7	1	1	0	1	3	0	0	0	0	0
	4:00 PM	2	9	0	9	20	2	1	0	7	10	0	4	0	2	6	0	4	0	0	4
	4:15 PM	2	10	0	0	12	2	7	0	0	9	0	2	0	0	2	0	1	0	0	1
	4:30 PM	4	6	1	7	18	2	6	1	7	16	2	0	0	0	2	0	0	0	0	0
	4:45 PM	1	7	0	3	11	1	6	0	3	10	0	1	0	0	1	0	0	0	0	0
	5:00 PM	4	6	1	3	14	3	4	1	2	10	1	2	0	1	4	0	0	0	0	0
	5:15 PM	3	3	0	3	9	1	3	0	3	7	2	0	0	0	2	0	0	0	0	0
	5:30 PM	2	5	1	3	11	2	5	1	3	11	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	4	1	2	7	0	3	1	2	6	0	1	0	0	1	0	0	0	0	0
	TOTAL	27	73	5	44	149	20	45	5	37	107	7	18	0	5	30	0	10	0	2	12

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South De Soto

East/West Devonshire

Day: Tuesday, October 17, 2017 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	508	479	185	166
BIKES	0	10	33	9
BUSES	33	16	60	20

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	331	7:30:00 AM	412	7:00:00 AM	351	7:45:00 AM	313	7:45:00 AM
PM PK 15 MIN	438	5:30:00 PM	344	5:45:00 PM	338	5:15:00 PM	246	5:45:00 PM
AM PK HOUR	1155	7:00:00 AM	1435	7:00:00 AM	1133	7:15:00 AM	1083	7:15:00 AM
PM PK HOUR	1623	4:45:00 PM	1318	5:00:00 PM	1154	4:30:00 PM	917	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	124	940	91	1155
8-9	75	847	76	998
9-10	85	817	55	957
3-4	114	1269	90	1473
4-5	132	1369	109	1610
5-6	129	1382	91	1602
TOTAL	659	6624	512	7795

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	81	1267	87	1435
8-9	74	1232	90	1396
9-10	88	1134	118	1340
3-4	126	902	150	1178
4-5	159	963	163	1285
5-6	178	956	184	1318
TOTAL	706	6454	792	7952

	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
7-8	2590	15	16	4	1
8-9	2394	9	1	5	0
9-10	2297	8	1	5	0
3-4	2651	10	5	7	0
4-5	2895	20	5	7	0
5-6	2920	15	0	6	0
TOTAL	15747	77	28	34	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	261	750	99	1110
8-9	171	516	112	799
9-10	153	419	112	684
3-4	211	628	109	948
4-5	250	647	110	1007
5-6	299	728	116	1143
TOTAL	1345	3688	658	5691

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	198	671	98	967
8-9	261	565	98	924
9-10	128	433	75	636
3-4	130	554	118	802
4-5	116	579	117	812
5-6	132	647	138	917
TOTAL	965	3449	644	5058

	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
7-8	2077	7	2	1	1
8-9	1723	9	0	2	0
9-10	1320	5	0	0	0
3-4	1750	10	2	1	0
4-5	1819	17	0	1	0
5-6	2060	10	0	3	0
TOTAL	10749	58	4	8	1

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:

North / Sounth De Soto

East/West Devonshire

Day: Tuesday, October 17, 2017

Weather Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	508	479	185	166
BIKES	0	0	0	0
BUSES	33	16	60	20

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	349	7:30:00 AM	426	7:00:00 AM	355	7:45:00 AM	319	7:45:00 AM
PM PK 15 MIN	444	5:30:00 PM	358	4:00:00 PM	344	5:15:00 PM	246	5:45:00 PM
AM PK HOUR	1208	7:00:00 AM	1478	7:00:00 AM	1163	7:15:00 AM	1100	7:30:00 AM
PM PK HOUR	1657	4:00:00 PM	1346	5:00:00 PM	1174	4:30:00 PM	932	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	135	980	93	1208
8-9	79	898	77	1054
9-10	88	874	58	1019
3-4	119	1307	93	1518
4-5	138	1409	110	1657
5-6	131	1406	92	1628
TOTAL	687	6873	523	8082

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	82	1307	90	1478
8-9	80	1270	94	1443
9-10	91	1183	121	1394
3-4	128	942	154	1223
4-5	160	999	167	1325
5-6	179	981	186	1346
TOTAL	718	6680	810	8208

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2685	0	0	0	0
2497	0	0	0	0
2413	0	0	0	0
2741	0	0	0	0
2981	0	0	0	0
2974	0	0	0	0
16290	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	267	763	108	1138
8-9	179	528	125	831
9-10	161	434	120	714
3-4	218	645	115	977
4-5	257	656	114	1026
5-6	302	736	121	1159
TOTAL	1382	3760	702	5844

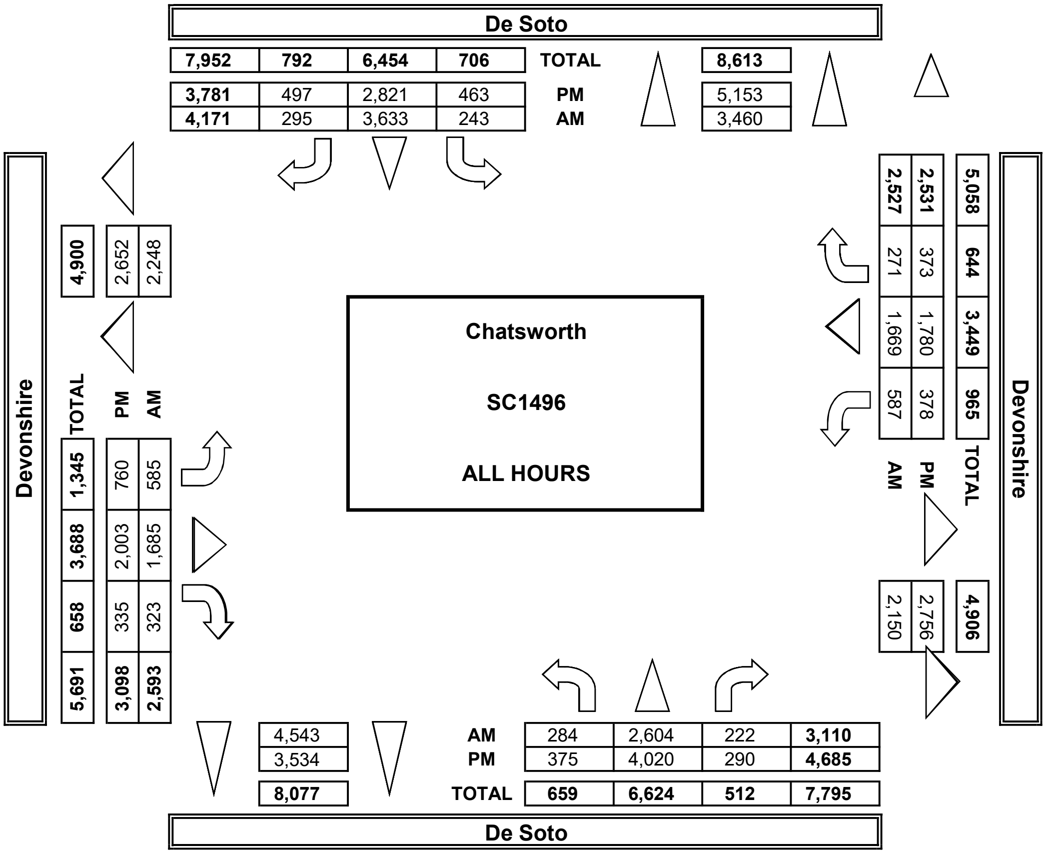
WESTBOUND Approach

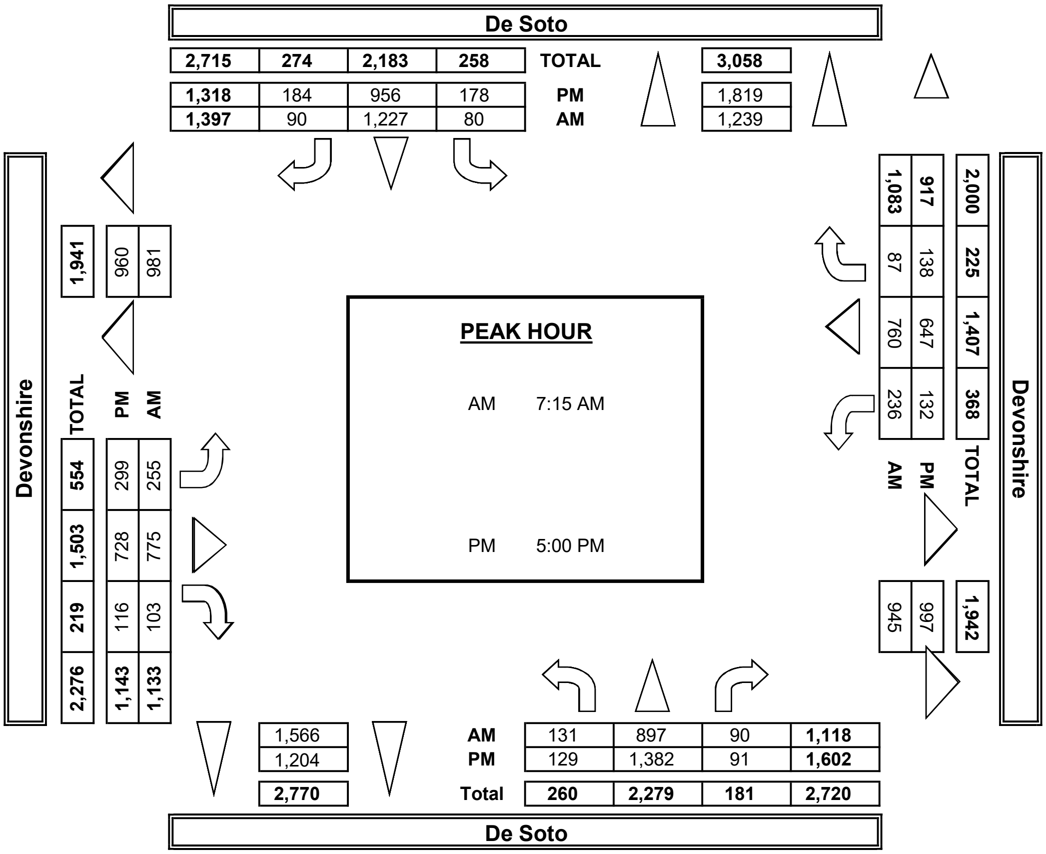
Hours	Lt	Th	Rt	Total
7-8	201	683	101	985
8-9	266	578	102	946
9-10	135	446	80	660
3-4	134	563	122	818
4-5	117	586	119	821
5-6	134	658	140	932
TOTAL	985	3513	663	5161

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2122	0	0	0	0
1777	0	0	0	0
1374	0	0	0	0
1795	0	0	0	0
1847	0	0	0	0
2091	0	0	0	0
11005	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 10/17/17 TUESDAY	LOCATION:	Chatsworth		PROJECT #:	SC1496
	NORTH & SOUTH:	De Soto		LOCATION #:	1
	EAST & WEST:	Devonshire		CONTROL:	SIGNAL

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6		AM		▲ N	
	Factor	1	1.5	2	3	2	2		PM			
									MD	◄ W		E ►
									OTHER		S ▼	
									OTHER			

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		De Soto			De Soto			Devonshire			Devonshire								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	2	3	0	2	3	0	2	2	0	2	2	1						
AM	7:00 AM	16	272	17	22	385	20	59	109	19	38	89	36	1,079					0
	7:15 AM	38	220	18	19	292	19	63	190	34	40	175	19	1,124					0
	7:30 AM	58	265	27	20	321	21	63	224	24	53	193	25	1,290					0
	7:45 AM	24	224	32	21	310	31	83	240	33	71	227	22	1,315					0
	8:00 AM	22	231	16	24	341	23	53	134	25	76	178	24	1,145					0
	8:15 AM	26	220	17	18	296	21	55	145	29	76	130	28	1,060					0
	8:30 AM	15	242	29	21	347	26	37	115	34	64	132	23	1,082					0
	8:45 AM	16	206	15	18	287	25	35	135	37	50	139	28	987					0
	9:00 AM	22	208	16	19	324	21	39	122	26	36	131	26	988					0
	9:15 AM	24	208	12	23	280	38	36	131	30	47	113	18	957					0
	9:30 AM	20	263	19	26	291	29	41	83	40	18	96	16	939					0
	9:45 AM	22	196	12	24	288	34	46	98	25	34	107	21	903					0
	VOLUMES	301	2,752	228	252	3,759	304	607	1,724	352	601	1,707	283	12,866	0	0	0	0	0
	APPROACH %	9%	84%	7%	6%	87%	7%	23%	64%	13%	23%	66%	11%						
	APP/DEPART	3,280	/	3,641	4,315	/	4,712	2,682	/	2,203	2,590	/	2,311	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	141	939	93	83	1,263	93	261	788	114	239	772	89	4,873					
	APPROACH %	12%	80%	8%	6%	88%	6%	22%	68%	10%	22%	70%	8%						
	PEAK HR FACTOR		0.841			0.928			0.819			0.862		0.927					
	APP/DEPART	1,173	/	1,289	1,439	/	1,616	1,163	/	964	1,099	/	1,006	0					
PM	03:00 PM	24	338	27	29	258	38	51	165	20	28	118	34	1,128					0
	3:15 PM	37	285	28	27	230	37	49	169	30	36	131	31	1,088					0
	3:30 PM	27	356	20	34	227	46	59	157	37	30	153	30	1,174					0
	3:45 PM	32	328	18	38	228	33	59	154	29	41	162	27	1,147					0
	4:00 PM	32	380	28	49	272	38	49	148	27	34	135	33	1,222					0
	4:15 PM	35	347	26	33	232	51	66	149	32	28	155	26	1,177					0
	4:30 PM	30	356	31	39	266	38	65	170	29	26	137	25	1,211					0
	4:45 PM	42	326	26	39	230	40	78	190	26	29	159	36	1,218					0
	5:00 PM	31	368	24	35	266	43	62	183	30	30	151	26	1,246					0
	5:15 PM	34	340	21	50	245	44	103	211	31	36	171	35	1,317					0
	5:30 PM	38	378	28	46	237	40	65	148	25	38	159	43	1,243					0
	5:45 PM	28	320	20	49	234	60	73	195	36	31	178	37	1,259					0
	VOLUMES	387	4,121	295	466	2,921	506	776	2,037	350	385	1,807	380	14,428	0	0	0	0	0
	APPROACH %	8%	86%	6%	12%	75%	13%	25%	64%	11%	15%	70%	15%						
	APP/DEPART	4,803	/	5,277	3,893	/	3,655	3,162	/	2,798	2,571	/	2,699	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	131	1,406	92	179	981	186	302	736	121	134	658	140	5,064					
	APPROACH %	8%	86%	6%	13%	73%	14%	26%	64%	10%	14%	71%	15%						
	PEAK HR FACTOR		0.918			0.979			0.843			0.947		0.962					
	APP/DEPART	1,628	/	1,847	1,346	/	1,236	1,159	/	1,007	932	/	975	0					

INTERSECTION TURNING MOVEMENT COUNTS

T219

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
Thu, Aug 29, 19	NORTH & SOUTH:	Mason	LOCATION #:	2
	EAST & WEST:	Devonshire	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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N
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E ►
S
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☑ Add U-Turns to Left Turns

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Devonshire			WESTBOUND Devonshire				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	3	0	1	3	0	1	3	0		0	0	0	0	
AM	7:00 AM	23	116	17	62	269	53	21	122	19	45	142	13	902	0	0	0	0	0
	7:15 AM	21	158	26	80	276	94	15	165	29	40	217	25	1,146	0	0	0	0	0
	7:30 AM	31	167	33	114	259	105	23	190	23	26	241	24	1,236	0	0	0	0	0
	7:45 AM	20	192	30	88	200	75	21	231	39	19	217	43	1,175	0	0	0	0	0
	8:00 AM	27	175	21	64	212	55	32	189	32	38	196	28	1,069	0	0	0	0	0
	8:15 AM	31	159	25	68	226	61	26	120	25	50	190	26	1,007	0	0	0	0	0
	8:30 AM	27	131	24	64	249	57	18	119	19	43	191	23	965	0	0	0	0	0
	8:45 AM	29	131	31	49	202	45	33	109	23	42	193	25	912	0	0	0	0	0
	9:00 AM	28	116	22	51	208	41	27	110	32	33	129	14	811	0	0	0	0	0
	9:15 AM	28	101	21	37	162	31	28	94	26	32	129	18	707	0	0	0	0	0
	9:30 AM	21	129	31	35	138	19	29	114	20	37	119	25	717	0	0	0	0	0
	9:45 AM	29	124	21	34	151	25	27	105	20	44	115	14	709	0	0	0	0	0
	VOLUMES	315	1,699	302	746	2,552	661	300	1,668	307	449	2,079	278	11,356	0	0	0	0	0
	APPROACH %	14%	73%	13%	19%	64%	17%	13%	73%	13%	16%	74%	10%						
	APP/DEPART	2,316	/	2,277	3,959	/	3,308	2,275	/	2,716	2,806	/	3,055	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	99	692	110	346	947	329	91	775	123	123	871	120	4,626					
	APPROACH %	11%	77%	12%	21%	58%	20%	9%	78%	12%	11%	78%	11%						
	PEAK HR FACTOR		0.931			0.848			0.850			0.957		0.936					
	APP/DEPART	901	/	903	1,622	/	1,193	989	/	1,231	1,114	/	1,299	0					
PM	03:00 PM	39	237	28	48	142	36	35	229	35	31	190	46	1,096	0	0	0	0	0
	3:15 PM	33	242	33	53	160	25	29	191	37	29	189	44	1,065	0	0	0	0	0
	3:30 PM	31	289	27	51	150	30	35	208	31	24	163	53	1,092	0	0	0	0	0
	3:45 PM	44	283	37	51	146	36	24	237	33	22	203	40	1,156	0	0	0	1	1
	4:00 PM	37	243	34	50	144	31	38	224	26	34	184	44	1,089	0	0	0	0	0
	4:15 PM	39	258	26	46	147	36	47	220	35	19	144	64	1,081	0	0	1	0	1
	4:30 PM	39	280	22	39	155	29	37	173	26	27	150	55	1,032	0	0	0	0	0
	4:45 PM	41	304	37	29	145	47	36	242	38	34	166	61	1,180	0	0	0	0	0
	5:00 PM	40	308	27	40	124	32	40	243	24	24	155	61	1,118	0	0	0	0	0
	5:15 PM	44	342	26	35	152	22	30	263	28	22	199	64	1,227	0	0	0	0	0
	5:30 PM	47	333	30	45	160	20	32	232	46	21	175	53	1,194	0	0	0	1	1
	5:45 PM	40	294	34	48	121	25	39	204	37	29	172	53	1,096	0	0	0	0	0
	VOLUMES	474	3,413	361	535	1,746	369	422	2,666	396	316	2,090	638	13,426	0	0	1	2	3
	APPROACH %	11%	80%	8%	20%	66%	14%	12%	77%	11%	10%	69%	21%						
	APP/DEPART	4,248	/	4,472	2,650	/	2,456	3,484	/	3,564	3,044	/	2,934	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	172	1,287	120	149	581	121	138	980	136	101	695	239	4,719					
	APPROACH %	11%	82%	8%	18%	68%	14%	11%	78%	11%	10%	67%	23%						
	PEAK HR FACTOR		0.958			0.946			0.977			0.908		0.961					
	APP/DEPART	1,579	/	1,664	851	/	817	1,254	/	1,250	1,035	/	988	0					

Mason

NORTH SIDE

Devonshire WEST SIDE

EAST SIDE **Devonshire**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	3	3	5	2	13	2	1	4	2	9	1	1	0	0	2	0	1	1	0	2
	7:15 AM	5	1	4	1	11	4	1	3	1	9	1	0	1	0	2	0	0	0	0	0
	7:30 AM	2	0	3	1	6	2	0	3	1	6	0	0	0	0	0	0	0	0	0	0
	7:45 AM	3	8	0	3	14	3	8	0	3	14	0	0	0	0	0	0	0	0	0	0
	8:00 AM	3	1	2	2	8	1	1	1	2	5	2	0	1	0	3	0	0	0	0	0
	8:15 AM	0	7	3	2	12	0	5	3	1	9	0	2	0	1	3	0	0	0	0	0
	8:30 AM	0	4	2	0	6	0	1	2	0	3	0	3	0	0	3	0	0	0	0	0
	8:45 AM	4	4	6	5	19	2	4	4	5	15	2	0	2	0	4	0	0	0	0	0
	9:00 AM	2	4	6	3	15	2	2	6	2	12	0	2	0	0	2	0	0	0	1	1
	9:15 AM	1	4	2	2	9	1	1	2	2	6	0	2	0	0	2	0	1	0	0	1
	9:30 AM	4	6	2	5	17	3	5	2	5	15	1	1	0	0	2	0	0	0	0	0
	9:45 AM	0	4	7	0	11	0	4	7	0	11	0	0	0	0	0	0	0	0	0	0
	TOTAL	27	46	42	26	141	20	33	37	24	114	7	11	4	1	23	0	2	1	1	4
PM	3:00 PM	2	4	3	0	9	1	1	0	0	2	1	0	0	0	1	0	3	3	0	6
	3:15 PM	4	2	4	4	14	4	1	2	4	11	0	1	2	0	3	0	0	0	0	0
	3:30 PM	2	3	1	1	7	1	0	0	0	1	1	1	0	0	2	0	2	1	1	4
	3:45 PM	0	4	3	2	9	0	2	1	2	5	0	1	2	0	3	0	1	0	0	1
	4:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
	4:15 PM	1	2	1	2	6	1	1	0	0	2	0	1	1	0	2	0	0	0	2	2
	4:30 PM	4	7	2	2	15	2	4	2	1	9	1	2	0	0	3	1	1	0	1	3
	4:45 PM	3	4	2	1	10	3	2	2	1	8	0	2	0	0	2	0	0	0	0	0
	5:00 PM	3	1	5	2	11	3	1	5	1	10	0	0	0	0	0	0	0	0	1	1
	5:15 PM	1	3	2	1	7	0	1	1	1	3	1	2	1	0	4	0	0	0	0	0
	5:30 PM	7	1	6	1	15	6	1	6	1	14	1	0	0	0	1	0	0	0	0	0
	5:45 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
	TOTAL	27	34	29	16	106	21	15	19	11	66	5	11	6	0	22	1	8	4	5	18

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Devonshire

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	278	298	194	217
BIKES	10	1	22	12
BUSES	19	17	35	31

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	242	7:45:00 AM	478	7:30:00 AM	291	7:45:00 AM	291	7:30:00 AM
PM PK 15 MIN	412	5:15:00 PM	238	3:15:00 PM	321	5:15:00 PM	285	5:15:00 PM
AM PK HOUR	911	7:30:00 AM	1675	7:00:00 AM	989	7:15:00 AM	1114	7:15:00 AM
PM PK HOUR	1579	4:45:00 PM	928	3:00:00 PM	1254	4:45:00 PM	1035	4:45:00 PM

NORTHBOUND Approach					SOUTHBOUND Approach					TOTAL	XING S/L		XING N/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	N-S	Ped	Sch	Ped	Sch
7-8	95	633	106	834	7-8	344	1004	327	1675	2509	10	1	11	0
8-9	114	596	101	811	8-9	245	889	218	1352	2163	11	0	3	0
9-10	106	470	95	671	9-10	157	659	116	932	1603	12	1	6	0
3-4	147	1051	125	1323	3-4	203	598	127	928	2251	4	6	6	0
4-5	156	1085	119	1360	4-5	164	591	143	898	2258	8	1	6	1
5-6	171	1277	117	1565	5-6	168	557	99	824	2389	3	1	9	0
TOTAL	789	5112	663	6564	TOTAL	1281	4298	1030	6609	13173	48	10	41	1

EASTBOUND Approach					WESTBOUND Approach					TOTAL	XING W/L		XING E/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	E-W	Ped	Sch	Ped	Sch
7-8	80	708	110	898	7-8	130	817	105	1052	1950	7	0	10	1
8-9	109	537	99	745	8-9	173	770	102	1045	1790	8	0	10	0
9-10	111	423	98	632	9-10	146	492	71	709	1341	9	1	17	0
3-4	123	865	136	1124	3-4	106	745	183	1034	2158	6	1	3	4
4-5	158	859	125	1142	4-5	114	644	224	982	2124	2	3	4	0
5-6	141	942	135	1218	5-6	96	701	231	1028	2246	3	1	12	0
TOTAL	722	4334	703	5759	TOTAL	765	4169	916	5850	11609	35	6	56	5

City Of Los Angeles

Department Of Transportation

PCE ADJUSTED

MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:

North / Sounth: Mason

East/West: Devonshire

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	278	298	194	217
BIKES	0	0	0	0
BUSES	19	17	35	31

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	248	7:45:00 AM	487	7:30:00 AM	298	7:45:00 AM	298	7:30:00 AM
PM PK 15 MIN	417	5:15:00 PM	245	3:15:00 PM	327	5:15:00 PM	291	5:15:00 PM
AM PK HOUR	942	7:30:00 AM	1707	7:00:00 AM	1015	7:15:00 AM	1139	7:15:00 AM
PM PK HOUR	1595	4:45:00 PM	959	3:00:00 PM	1280	4:45:00 PM	1058	3:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	99	655	111	865
8-9	119	623	103	844
9-10	110	492	100	701
3-4	151	1073	127	1351
4-5	160	1100	121	1380
5-6	172	1292	119	1582
TOTAL	809	5234	680	6722

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	345	1031	331	1707
8-9	254	911	220	1385
9-10	160	685	120	965
3-4	208	622	129	959
4-5	168	607	146	921
5-6	170	570	101	840
TOTAL	1304	4425	1046	6775

	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
7-8	2571	0	0	0	0
8-9	2229	0	0	0	0
9-10	1666	0	0	0	0
3-4	2310	0	0	0	0
4-5	2301	0	0	0	0
5-6	2422	0	0	0	0
TOTAL	13497	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	81	729	114	923
8-9	112	551	102	764
9-10	114	436	101	650
3-4	127	886	137	1150
4-5	160	877	127	1164
5-6	143	960	139	1241
TOTAL	735	4438	719	5891

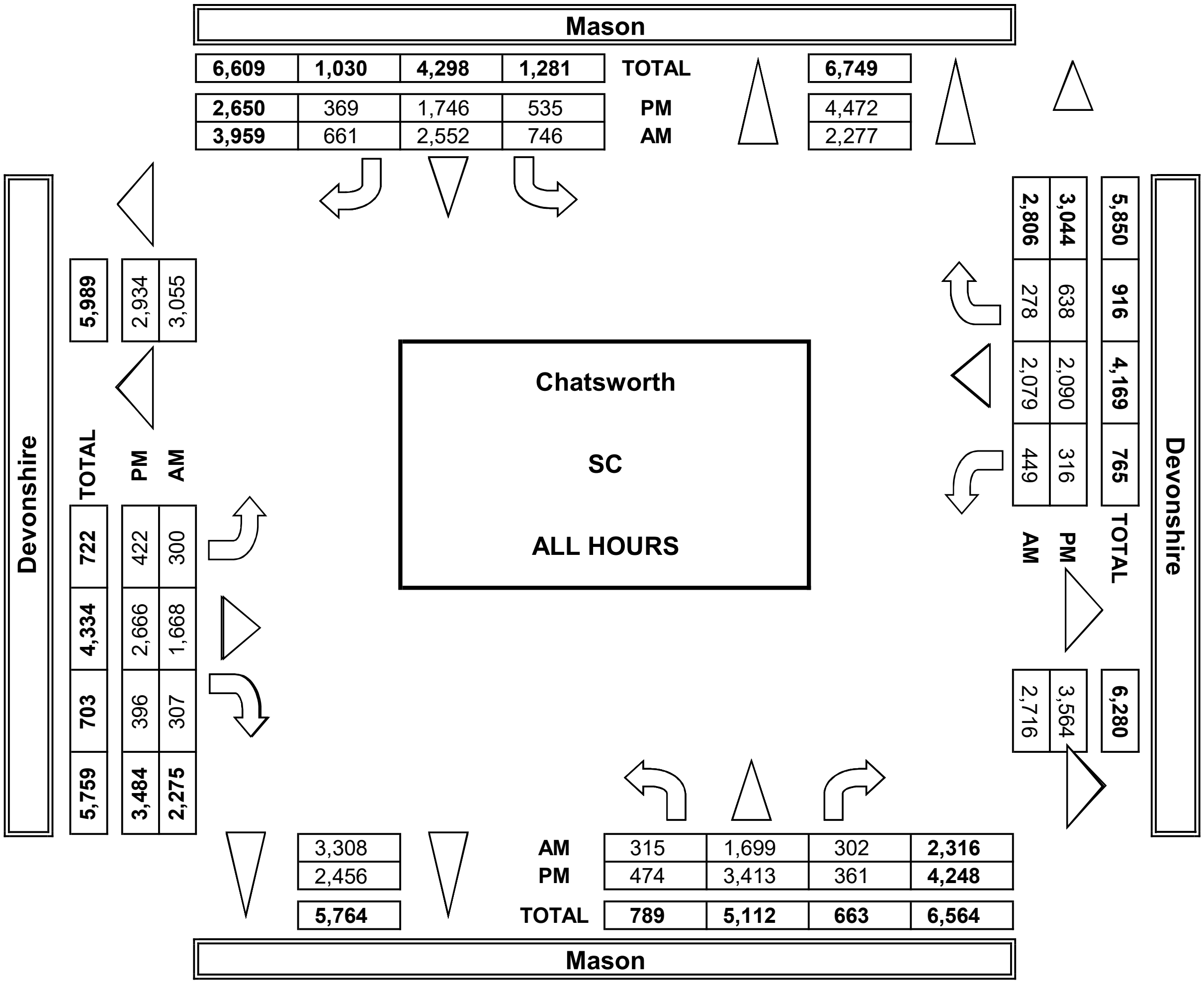
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	134	839	106	1078
8-9	181	794	105	1079
9-10	149	510	74	733
3-4	108	765	185	1058
4-5	116	660	226	1001
5-6	97	714	233	1043
TOTAL	783	4279	928	5990

	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
7-8	2001	0	0	0	0
8-9	1843	0	0	0	0
9-10	1383	0	0	0	0
3-4	2207	0	0	0	0
4-5	2164	0	0	0	0
5-6	2284	0	0	0	0
TOTAL	11881	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Chatsworth

SC

ALL HOURS

Mason (north leg)

6,609	**1,030**	**4,298**	**1,281**	**TOTAL**	**6,749**
2,650	369	1,746	535	**PM**	4,472
3,959	661	2,552	746	**AM**	2,277

Devonshire (west leg)

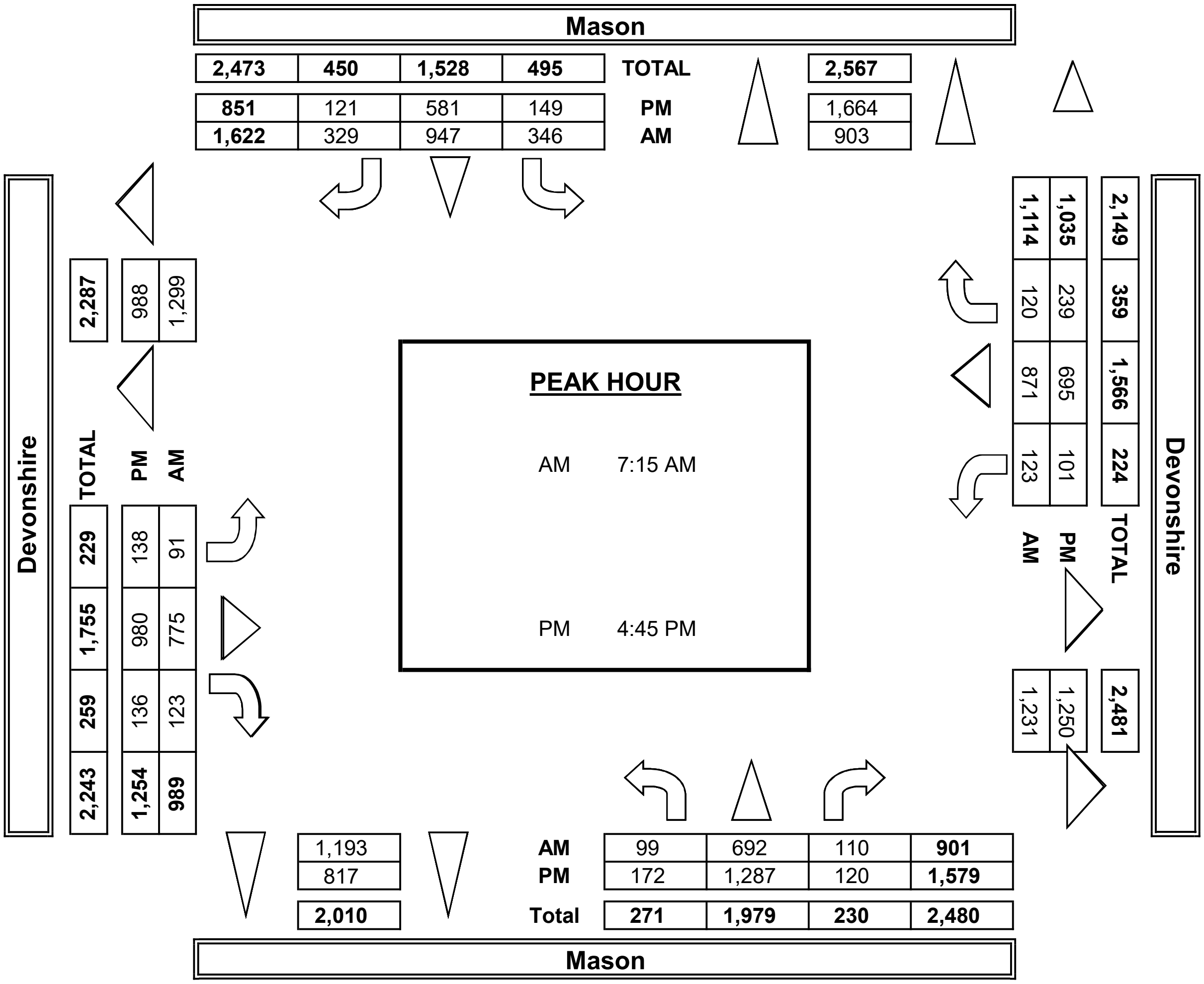
TOTAL	**5,989**	**722**	**4,334**	**703**	**5,759**
PM	2,934	422	2,666	396	**3,484**
AM	3,055	300	1,668	307	**2,275**

Devonshire (east leg)

AM	**2,806**	278	2,079	449	2,716
PM	**3,044**	638	2,090	316	3,564
TOTAL	**5,850**	**916**	**4,169**	**765**	**6,280**

Mason (south leg)

3,308	**AM**	315	1,699	302	**2,316**
2,456	**PM**	474	3,413	361	**4,248**
5,764	**TOTAL**	**789**	**5,112**	**663**	**6,564**



PEAK HOUR

AM 7:15 AM

PM 4:45 PM

Mason (north leg)

2,473	**450**	**1,528**	**495**	**TOTAL**	**2,567**
851	121	581	149	**PM**	1,664
1,622	329	947	346	**AM**	903

Devonshire (west leg)

TOTAL	**2,287**	**229**	**1,755**	**259**	**2,243**
PM	988	138	980	136	**1,254**
AM	1,299	91	775	123	**989**

Devonshire (east leg)

AM	**1,114**	120	871	123	1,231
PM	**1,035**	239	695	101	1,250
TOTAL	**2,149**	**359**	**1,566**	**224**	**2,481**

Mason (south leg)

1,193	**AM**	99	692	110	**901**
817	**PM**	172	1,287	120	**1,579**
2,010	**Total**	**271**	**1,979**	**230**	**2,480**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
8/29/19	NORTH & SOUTH:	Mason	LOCATION #:	2
THURSDAY	EAST & WEST:	Devonshire	CONTROL:	SIGNAL

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6		AM		▲	
	Factor	1	1.5	2	3	2	2		PM		N	
									MD	◄ W		E ►
									OTHER		S	
									OTHER		▼	

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Devonshire			WESTBOUND Devonshire				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	3	0	1	3	0	1	3	0						
AM	7:00 AM	24	123	18	62	280	54	21	126	21	46	147	14	934					0
	7:15 AM	22	164	28	80	282	95	16	170	30	42	223	25	1,175					0
	7:30 AM	32	173	34	115	265	107	23	197	23	27	247	24	1,265					0
	7:45 AM	21	196	32	88	204	76	21	237	40	20	222	43	1,198					0
	8:00 AM	28	181	21	66	219	56	33	193	34	39	201	28	1,097					0
	8:15 AM	33	167	26	69	232	62	28	124	25	54	196	26	1,040					0
	8:30 AM	29	136	25	67	255	57	18	123	20	44	199	24	993					0
	8:45 AM	30	139	31	53	206	45	34	112	24	45	199	27	942					0
	9:00 AM	29	120	22	53	214	42	28	112	32	34	131	15	830					0
	9:15 AM	30	105	23	38	171	32	29	100	27	33	133	19	736					0
	9:30 AM	21	138	32	36	142	20	31	116	21	39	128	26	747					0
	9:45 AM	31	129	23	34	159	27	27	109	21	44	119	15	736					0
	VOLUMES	327	1,770	313	759	2,627	671	306	1,716	316	463	2,142	284	11,691	0	0	0	0	0
	APPROACH %	14%	73%	13%	19%	65%	17%	13%	73%	14%	16%	74%	10%						
	APP/DEPART	2,410	/	2,360	4,056	/	3,405	2,337	/	2,788	2,889	/	3,139	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	103	713	115	349	970	333	92	796	127	126	893	120	4,735					
	APPROACH %	11%	77%	12%	21%	59%	20%	9%	78%	12%	11%	78%	11%						
	PEAK HR FACTOR		0.938			0.849			0.851			0.957		0.936					
	APP/DEPART	930	/	925	1,652	/	1,223	1,015	/	1,259	1,139	/	1,328	0					
PM	03:00 PM	40	244	29	49	148	36	37	235	36	32	199	46	1,128					0
	3:15 PM	34	248	33	55	165	25	29	195	38	30	192	44	1,086					0
	3:30 PM	32	291	27	52	157	31	36	216	31	25	166	54	1,116					0
	3:45 PM	47	290	38	53	153	37	25	240	33	23	208	41	1,187					0
	4:00 PM	38	247	34	51	149	32	39	227	27	35	191	45	1,113					0
	4:15 PM	42	262	28	47	150	38	47	227	36	20	146	65	1,106					0
	4:30 PM	39	284	22	41	160	29	37	176	26	27	154	56	1,049					0
	4:45 PM	41	307	38	30	149	48	37	247	39	34	170	61	1,198					0
	5:00 PM	40	311	27	40	127	32	40	250	26	24	157	61	1,134					0
	5:15 PM	44	347	27	35	157	23	31	268	29	22	204	65	1,249					0
	5:30 PM	48	336	31	47	164	21	33	236	47	21	179	54	1,215					0
	5:45 PM	40	299	35	48	122	26	39	207	38	30	174	53	1,108					0
	VOLUMES	482	3,464	367	546	1,799	376	429	2,722	403	320	2,138	644	13,687	0	0	0	0	0
	APPROACH %	11%	80%	8%	20%	66%	14%	12%	77%	11%	10%	69%	21%						
	APP/DEPART	4,313	/	4,537	2,720	/	2,522	3,554	/	3,634	3,101	/	2,995	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	173	1,301	122	151	596	123	140	1,000	140	101	709	241	4,796					
	APPROACH %	11%	82%	8%	17%	69%	14%	11%	78%	11%	10%	67%	23%						
	PEAK HR FACTOR		0.956			0.942			0.979			0.903		0.960					
	APP/DEPART	1,595	/	1,682	870	/	837	1,280	/	1,273	1,051	/	1,005	0					

Mason

NORTH SIDE

Devonshire WEST SIDE

EAST SIDE **Devonshire**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

T219

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Aug 29, 19	LOCATION:	Chatsworth	PROJECT #:	SC
	NORTH & SOUTH:	Mason	LOCATION #:	3
	EAST & WEST:	Mayall	CONTROL:	SIGNAL

NOTES:

Queue SB AM; NB PM

AM
PM
MD
OTHER
OTHER

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☑ Add U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Mayall			Mayall								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0		0	0	0	0	
AM	7:00 AM	14	136	1	7	259	42	12	4	8	2	7	8	500	0	0	0	0	0
	7:15 AM	22	183	5	20	228	47	18	16	22	1	24	13	599	0	0	0	0	0
	7:30 AM	32	196	6	18	235	63	36	51	20	6	54	11	728	0	0	0	0	0
	7:45 AM	10	206	5	44	201	38	18	30	22	5	8	14	601	0	0	0	0	0
	8:00 AM	2	200	4	22	235	46	8	3	8	5	4	15	552	0	0	0	0	0
	8:15 AM	5	160	2	19	235	41	3	6	6	0	1	7	485	0	0	0	0	0
	8:30 AM	3	179	3	30	238	46	9	4	4	0	3	11	530	0	1	0	0	1
	8:45 AM	2	174	4	23	218	33	7	3	2	1	1	10	478	0	0	0	0	0
	9:00 AM	3	148	2	11	213	34	12	2	8	1	1	11	446	0	0	0	0	0
	9:15 AM	2	152	0	4	224	8	3	0	3	1	1	5	403	0	0	0	0	0
	9:30 AM	0	151	3	6	192	14	13	1	7	2	1	14	404	0	0	0	0	0
	9:45 AM	4	151	0	3	207	6	6	0	9	3	1	5	395	0	0	0	0	0
	VOLUMES	99	2,036	35	207	2,685	418	145	120	119	27	106	124	6,121	0	1	0	0	1
	APPROACH %	5%	94%	2%	6%	81%	13%	38%	31%	31%	11%	41%	48%						
	APP/DEPART	2,170	/	2,306	3,310	/	2,831	384	/	361	257	/	623	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	66	785	20	104	899	194	80	100	72	17	90	53	2,480					
	APPROACH %	8%	90%	2%	9%	75%	16%	32%	40%	29%	11%	56%	33%						
	PEAK HR FACTOR		0.931			0.947			0.589			0.563		0.852					
	APP/DEPART	871	/	918	1,197	/	988	252	/	224	160	/	350	0					
PM	03:00 PM	12	315	3	17	181	23	18	10	13	0	9	8	609	0	0	0	0	0
	3:15 PM	12	280	6	18	205	20	8	6	5	1	9	11	581	0	1	0	0	1
	3:30 PM	12	375	2	6	183	12	18	7	6	1	1	15	638	0	0	0	0	0
	3:45 PM	11	331	8	11	195	12	12	7	5	0	2	6	600	0	1	0	0	1
	4:00 PM	14	339	4	7	194	17	14	6	3	1	5	6	610	0	0	0	0	0
	4:15 PM	9	329	2	12	191	22	13	6	7	0	5	5	601	0	0	0	0	0
	4:30 PM	11	331	4	13	182	17	4	1	14	0	3	8	588	0	0	0	0	0
	4:45 PM	9	403	2	11	200	18	12	9	9	0	2	8	683	0	0	0	0	0
	5:00 PM	13	397	3	4	176	9	17	6	10	1	2	6	644	0	0	0	0	0
	5:15 PM	5	441	5	7	215	24	18	6	16	0	1	15	753	0	0	0	0	0
	5:30 PM	8	367	7	10	207	14	17	3	7	1	3	7	651	0	0	0	0	0
	5:45 PM	13	341	3	6	194	14	11	5	2	2	4	3	598	0	0	0	0	0
	VOLUMES	129	4,249	49	122	2,323	202	162	72	97	7	46	98	7,556	0	2	0	0	2
	APPROACH %	3%	96%	1%	5%	88%	8%	49%	22%	29%	5%	30%	65%						
	APP/DEPART	4,427	/	4,511	2,647	/	2,427	331	/	241	151	/	377	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	35	1,608	17	32	798	65	64	24	42	2	8	36	2,731					
	APPROACH %	2%	97%	1%	4%	89%	7%	49%	18%	32%	4%	17%	78%						
	PEAK HR FACTOR		0.920			0.910			0.813			0.719		0.907					
	APP/DEPART	1,660	/	1,708	895	/	842	130	/	73	46	/	108	0					

Mason

NORTH SIDE

Mayall WEST SIDE

EAST SIDE **Mayall**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	7:15 AM	4	1	0	0	5	3	0	0	0	3	1	1	0	0	2	0	0	0	0	0
	7:30 AM	3	3	0	0	6	2	0	0	0	2	0	3	0	0	3	1	0	0	0	1
	7:45 AM	1	0	2	2	5	1	0	2	0	3	0	0	0	2	2	0	0	0	0	0
	8:00 AM	3	1	3	2	9	3	0	2	1	6	0	1	0	0	1	0	0	1	1	2
	8:15 AM	1	1	3	1	6	1	0	2	1	4	0	1	1	0	2	0	0	0	0	0
	8:30 AM	1	0	1	1	3	1	0	1	1	3	0	0	0	0	0	0	0	0	0	0
	8:45 AM	3	0	3	0	6	3	0	1	0	4	0	0	2	0	2	0	0	0	0	0
	9:00 AM	3	3	1	2	9	2	1	1	1	5	0	2	0	0	2	1	0	0	1	2
	9:15 AM	1	0	2	0	3	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0
	9:30 AM	1	0	2	0	3	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1
	9:45 AM	1	0	2	0	3	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0
	TOTAL	23	9	19	8	59	18	1	13	4	36	1	8	5	2	16	4	0	1	2	7
PM	3:00 PM	5	0	0	0	5	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2
	3:15 PM	0	2	1	1	4	0	0	0	1	1	0	0	1	0	1	0	2	0	0	2
	3:30 PM	4	1	0	0	5	3	0	0	0	3	0	1	0	0	1	1	0	0	0	1
	3:45 PM	3	0	1	0	4	2	0	0	0	2	0	0	1	0	1	1	0	0	0	1
	4:00 PM	1	3	2	0	6	1	0	2	0	3	0	2	0	0	2	0	1	0	0	1
	4:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1
	4:30 PM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
	4:45 PM	1	1	0	2	4	1	0	0	1	2	0	0	0	1	1	0	1	0	0	1
	5:00 PM	1	0	2	0	3	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2
	5:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	5:30 PM	3	0	1	0	4	2	0	0	0	2	0	0	1	0	1	1	0	0	0	1
	5:45 PM	1	3	2	0	6	1	0	2	0	3	0	2	0	0	2	0	1	0	0	1
	TOTAL	20	11	10	5	46	14	0	5	4	23	0	5	4	1	10	6	6	1	0	13

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason
East/West Mayall

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	325	328	14	8
BIKES	9	3	13	1
BUSES	22	17	1	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	234	7:30:00 AM	316	7:30:00 AM	107	7:30:00 AM	71	7:30:00 AM
PM PK 15 MIN	451	5:15:00 PM	246	5:15:00 PM	41	5:15:00 PM	21	5:15:00 PM
AM PK HOUR	871	7:15:00 AM	1202	7:00:00 AM	257	7:00:00 AM	160	7:15:00 AM
PM PK HOUR	1660	4:45:00 PM	895	4:45:00 PM	130	4:45:00 PM	63	3:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	78	721	17	816
8-9	12	713	13	738
9-10	9	602	5	616
3-4	47	1301	19	1367
4-5	43	1402	12	1457
5-6	39	1546	18	1603
TOTAL	228	6285	84	6597

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	89	923	190	1202
8-9	94	926	166	1186
9-10	24	836	62	922
3-4	52	764	67	883
4-5	43	767	74	884
5-6	27	792	61	880
TOTAL	329	5008	620	5957

	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
7-8	2018	0	0	6	2
8-9	1924	0	0	8	0
9-10	1538	1	0	4	2
3-4	2250	0	2	8	4
4-5	2341	0	3	2	0
5-6	2483	0	1	4	2
TOTAL	12554	1	6	32	10

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	84	101	72	257
8-9	27	16	20	63
9-10	34	3	27	64
3-4	56	30	29	115
4-5	43	22	33	98
5-6	63	20	35	118
TOTAL	307	192	216	715

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	14	93	46	153
8-9	6	9	43	58
9-10	7	4	35	46
3-4	2	21	40	63
4-5	1	15	27	43
5-6	4	10	31	45
TOTAL	34	152	222	408

	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
7-8	410	0	0	2	0
8-9	121	3	1	6	1
9-10	110	1	1	5	0
3-4	178	1	0	0	0
4-5	141	3	0	2	0
5-6	163	0	0	3	1
TOTAL	1123	8	2	18	2

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Mason

East/West: Mayall

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	325	328	14	8
BIKES	0	0	0	0
BUSES	22	17	1	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	241	7:30:00 AM	324	7:00:00 AM	108	7:30:00 AM	71	7:30:00 AM
PM PK 15 MIN	456	5:15:00 PM	254	5:15:00 PM	42	5:15:00 PM	21	5:15:00 PM
AM PK HOUR	908	7:15:00 AM	1240	7:00:00 AM	260	7:00:00 AM	161	7:15:00 AM
PM PK HOUR	1676	4:45:00 PM	920	4:45:00 PM	131	4:45:00 PM	64	3:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	81	753	17	850
8-9	13	752	15	780
9-10	10	632	5	646
3-4	50	1332	20	1402
4-5	45	1427	13	1484
5-6	40	1563	19	1621
TOTAL	237	6457	88	6782

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	92	949	199	1240
8-9	97	956	169	1221
9-10	24	868	64	956
3-4	53	793	67	912
4-5	43	790	74	907
5-6	28	815	61	903
TOTAL	336	5170	633	6138

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2090	0	0	0	0
2001	0	0	0	0
1602	0	0	0	0
2314	0	0	0	0
2391	0	0	0	0
2524	0	0	0	0
12920	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	85	102	74	260
8-9	27	16	21	64
9-10	35	3	29	67
3-4	56	31	30	117
4-5	44	22	33	99
5-6	63	20	35	118
TOTAL	309	194	221	723

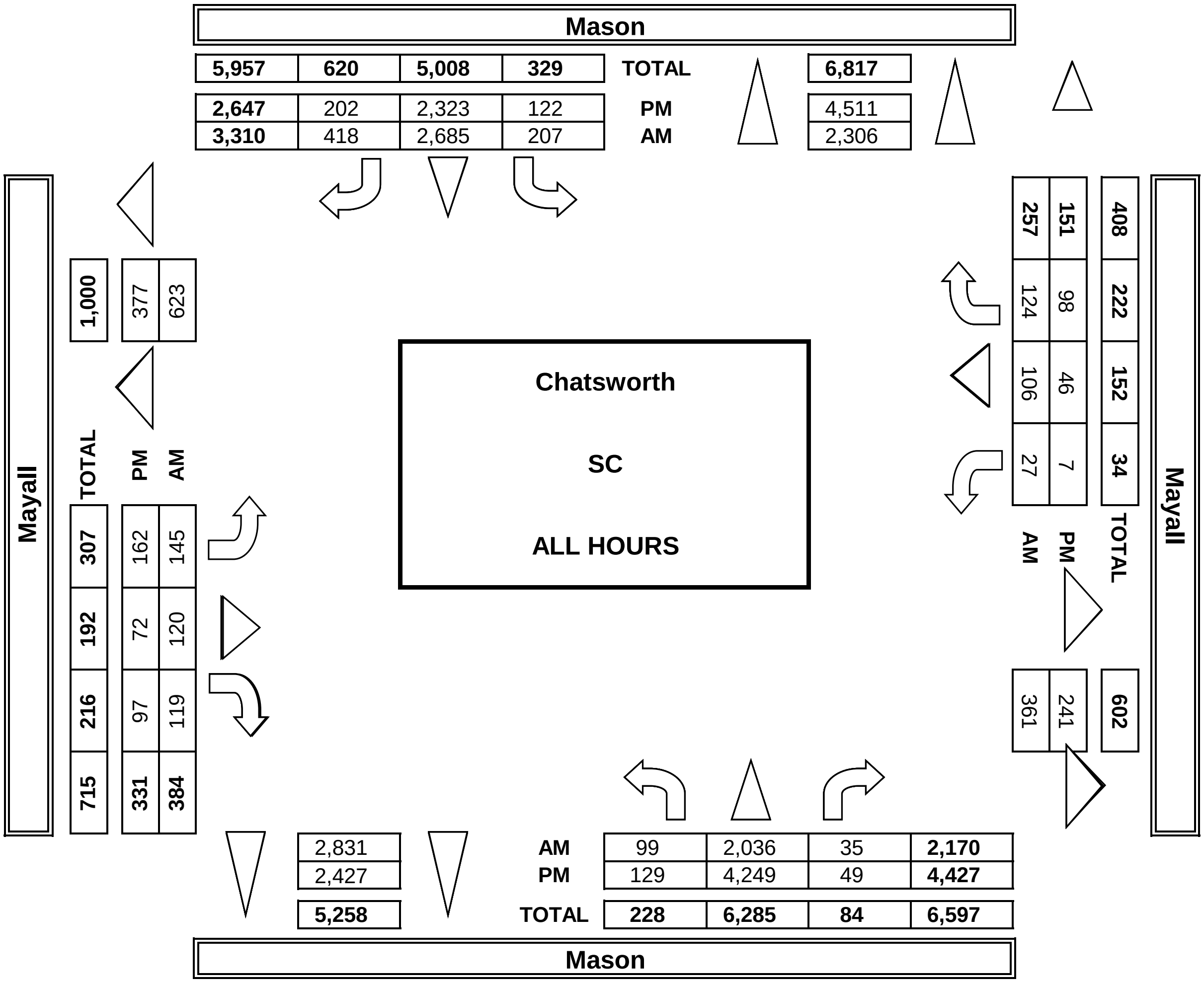
WESTBOUND Approach

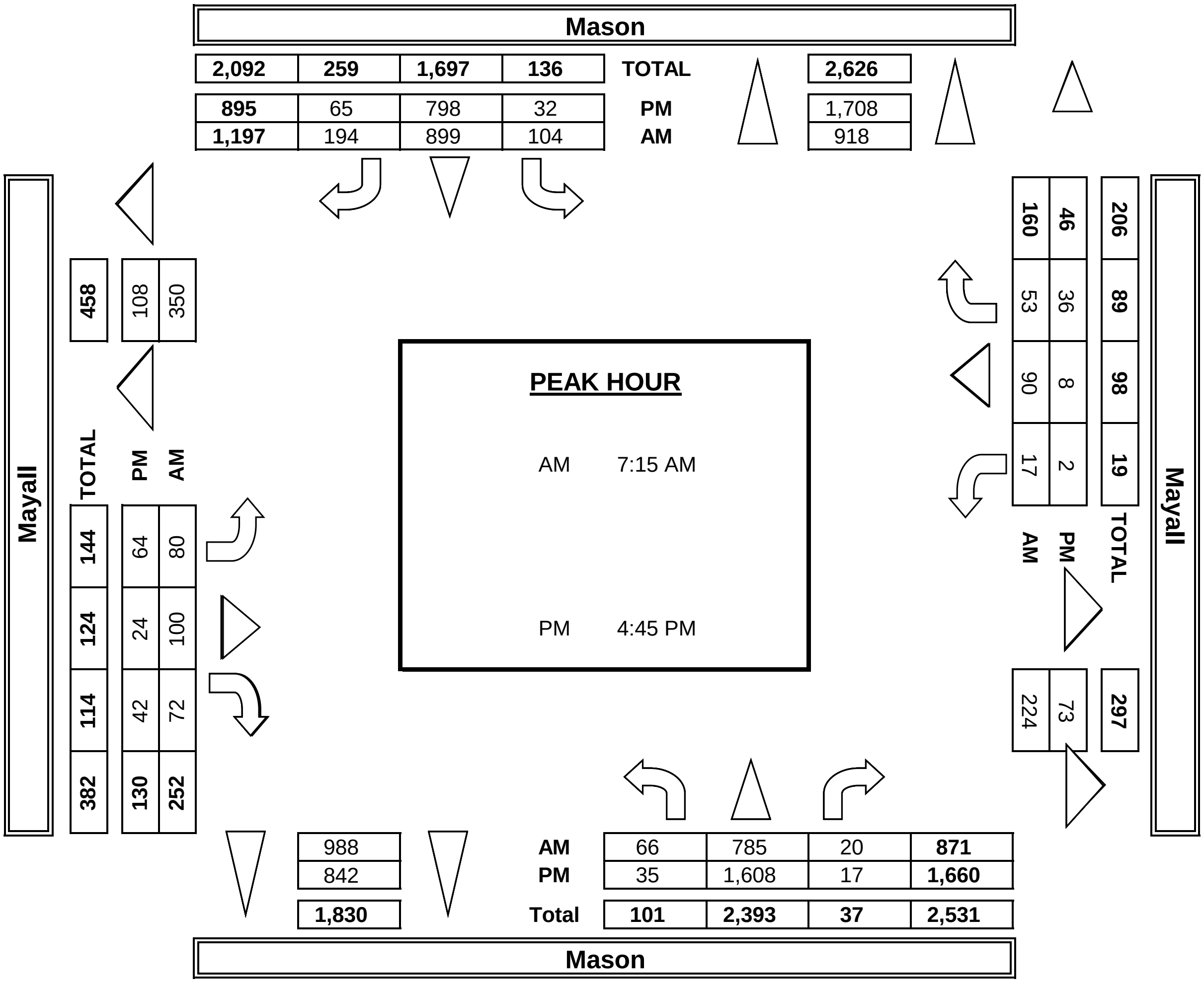
Hours	Lt	Th	Rt	Total
7-8	14	93	46	153
8-9	6	9	45	60
9-10	8	4	36	47
3-4	2	22	41	64
4-5	1	16	27	44
5-6	4	10	31	45
TOTAL	35	153	225	412

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
413	0	0	0	0
123	0	0	0	0
114	0	0	0	0
181	0	0	0	0
142	0	0	0	0
163	0	0	0	0
1135	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
8/29/19	NORTH & SOUTH:	Mason	LOCATION #:	3
THURSDAY	EAST & WEST:	Mayall	CONTROL:	SIGNAL

	NOTES:									
PCE Adjusted	Class	1	2	3	4	5	6			AM PM MD OTHER OTHER
	Factor	1	1.5	2	3	2	2			

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		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Mayall			Mayall								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0						
AM	7:00 AM	15	144	1	8	270	46	12	4	9	2	7	8	524					0
	7:15 AM	24	193	5	21	234	49	18	16	23	1	24	13	620					0
	7:30 AM	33	203	6	19	238	65	36	52	20	6	54	11	741					0
	7:45 AM	10	214	5	45	208	40	19	30	23	5	8	14	619					0
	8:00 AM	2	210	5	23	243	48	8	3	9	5	4	16	574					0
	8:15 AM	5	172	2	21	244	41	3	6	6	0	1	7	508					0
	8:30 AM	4	189	4	30	244	47	9	4	4	0	3	12	548					0
	8:45 AM	2	181	5	24	225	33	7	3	2	1	1	10	494					0
	9:00 AM	3	152	2	11	220	35	12	2	8	2	1	11	458					0
	9:15 AM	2	161	0	4	234	8	3	0	4	1	1	6	422					0
	9:30 AM	0	161	3	6	199	15	14	1	8	2	1	14	424					0
	9:45 AM	5	158	0	3	216	6	6	0	9	3	1	5	412					0
	VOLUMES	103	2,136	37	213	2,773	431	147	121	123	28	106	126	6,341	0	0	0	0	0
	APPROACH %	5%	94%	2%	6%	81%	13%	38%	31%	32%	11%	41%	49%						
	APP/DEPART	2,276	/	2,408	3,416	/	2,923	390	/	371	260	/	640	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	68	819	21	107	922	200	81	101	74	17	90	54	2,553					
	APPROACH %	7%	90%	2%	9%	75%	16%	32%	39%	29%	11%	56%	34%						
	PEAK HR FACTOR		0.941			0.957			0.593			0.567		0.862					
	APP/DEPART	908	/	954	1,229	/	1,013	255	/	228	161	/	358	0					
PM	03:00 PM	12	322	3	17	189	23	18	10	14	0	9	9	625					0
	3:15 PM	13	289	6	18	212	20	8	7	5	1	9	11	598					0
	3:30 PM	13	382	2	6	188	12	18	8	6	1	2	15	652					0
	3:45 PM	12	340	9	12	204	12	12	7	5	0	2	6	621					0
	4:00 PM	16	345	5	7	201	17	14	6	3	1	6	6	626					0
	4:15 PM	9	338	2	12	197	22	13	6	7	0	5	5	615					0
	4:30 PM	11	337	4	13	188	17	4	1	14	0	3	8	599					0
	4:45 PM	9	408	2	11	205	18	13	9	9	0	2	8	693					0
	5:00 PM	13	400	3	4	181	9	17	6	10	1	2	6	651					0
	5:15 PM	5	446	5	7	223	24	18	6	16	0	1	15	766					0
	5:30 PM	8	371	7	11	215	14	17	3	7	1	3	7	663					0
	5:45 PM	14	346	4	6	197	14	11	5	2	2	4	3	607					0
	VOLUMES	134	4,321	51	123	2,397	202	163	73	98	7	47	99	7,714	0	0	0	0	0
	APPROACH %	3%	96%	1%	5%	88%	7%	49%	22%	29%	5%	31%	65%						
	APP/DEPART	4,506	/	4,582	2,722	/	2,502	333	/	247	153	/	383	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	35	1,624	17	33	823	65	65	24	42	2	8	36	2,773					
	APPROACH %	2%	97%	1%	4%	89%	7%	49%	18%	32%	4%	17%	78%						
	PEAK HR FACTOR		0.919			0.907			0.816			0.719		0.905					
	APP/DEPART	1,676	/	1,725	920	/	867	131	/	74	46	/	108	0					

Mason

NORTH SIDE

Mayall WEST SIDE

EAST SIDE **Mayall**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T219

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
Thu, Aug 29, 19	NORTH & SOUTH:	Mason	LOCATION #:	4
	EAST & WEST:	Lassen	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲
N
◄ W
E ►
S
▼

☑dd U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		Mason			Mason			Lassen			Lassen			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
AM	7:00 AM	17	134	25	5	220	9	13	110	19	22	140	10	724
	7:15 AM	24	188	19	9	229	17	6	114	18	27	196	20	867
	7:30 AM	27	176	34	18	198	25	25	135	17	23	197	19	894
	7:45 AM	18	185	28	9	202	21	20	139	21	24	187	33	887
	8:00 AM	20	165	21	10	214	16	14	119	19	19	164	26	807
	8:15 AM	17	172	12	12	202	14	18	108	20	33	174	18	800
	8:30 AM	7	145	18	8	204	10	20	105	21	28	139	13	718
	8:45 AM	15	128	13	20	191	16	15	99	12	24	110	15	658
	9:00 AM	10	114	11	17	198	23	21	90	16	23	98	17	638
	9:15 AM	9	118	11	25	192	22	10	66	12	9	76	17	567
	9:30 AM	13	124	13	16	157	21	15	90	9	19	64	12	553
	9:45 AM	10	110	18	16	178	20	21	90	10	13	87	21	594
	VOLUMES	187	1,759	223	165	2,385	214	198	1,265	194	264	1,632	221	8,707
	APPROACH %	9%	81%	10%	6%	86%	8%	12%	76%	12%	12%	77%	10%	
	APP/DEPART	2,169	/	2,178	2,764	/	2,843	1,657	/	1,653	2,117	/	2,033	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	89	714	102	46	843	79	65	507	75	93	744	98	3,455
	APPROACH %	10%	79%	11%	5%	87%	8%	10%	78%	12%	10%	80%	10%	
	PEAK HR FACTOR		0.955			0.949			0.899			0.958		0.966
	APP/DEPART	905	/	877	968	/	1,011	647	/	655	935	/	912	0
PM	03:00 PM	30	257	39	22	155	17	52	151	16	11	111	20	881
	3:15 PM	23	241	47	17	179	24	31	139	18	19	143	22	903
	3:30 PM	18	333	53	12	172	16	20	165	3	24	146	26	988
	3:45 PM	23	299	72	15	159	23	20	160	7	15	110	23	926
	4:00 PM	28	295	92	21	151	22	31	172	9	11	140	27	999
	4:15 PM	23	274	67	21	153	16	39	155	11	22	117	21	919
	4:30 PM	17	301	90	17	148	25	25	173	7	16	130	17	966
	4:45 PM	18	341	66	20	155	27	34	160	13	20	125	36	1,015
	5:00 PM	20	353	56	21	138	29	34	164	13	20	144	26	1,018
	5:15 PM	28	352	54	22	156	24	33	152	6	19	144	34	1,024
	5:30 PM	23	341	82	22	159	19	34	144	9	16	112	36	997
	5:45 PM	29	323	47	15	144	23	40	161	9	23	137	28	979
	VOLUMES	280	3,710	765	225	1,869	265	393	1,896	121	216	1,559	316	11,615
	APPROACH %	6%	78%	16%	10%	79%	11%	16%	79%	5%	10%	75%	15%	
	APP/DEPART	4,755	/	4,419	2,359	/	2,206	2,410	/	2,886	2,091	/	2,104	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	89	1,387	258	85	608	99	135	620	41	75	525	132	4,054
	APPROACH %	5%	80%	15%	11%	77%	13%	17%	78%	5%	10%	72%	18%	
	PEAK HR FACTOR		0.972			0.980			0.943			0.929		0.990
	APP/DEPART	1,734	/	1,654	792	/	724	796	/	963	732	/	713	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Mason

NORTH SIDE

Lassen WEST SIDE

EAST SIDE **Lassen**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	7	1	4	1	13	6	0	2	1	9	1	0	1	0	2	0	1	1	0	2
	7:15 AM	5	0	4	0	9	3	0	2	0	5	1	0	0	0	1	1	0	2	0	3
	7:30 AM	11	0	12	0	23	5	0	5	0	10	1	0	0	0	1	5	0	7	0	12
	7:45 AM	4	2	2	0	8	3	0	1	0	4	1	2	1	0	4	0	0	0	0	0
	8:00 AM	3	2	5	1	11	3	2	3	1	9	0	0	1	0	1	0	0	1	0	1
	8:15 AM	2	0	3	0	5	1	0	3	0	4	0	0	0	0	0	1	0	0	0	1
	8:30 AM	5	0	5	1	11	5	0	5	0	10	0	0	0	0	0	0	0	0	1	1
	8:45 AM	4	2	1	0	7	3	0	0	0	3	1	2	1	0	4	0	0	0	0	0
	9:00 AM	2	0	0	1	3	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0
	9:15 AM	1	0	3	0	4	1	0	1	0	2	0	0	0	0	0	0	0	2	0	2
	9:30 AM	1	0	2	0	3	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0
	9:45 AM	2	1	0	0	3	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0
	TOTAL	47	8	41	4	100	33	3	23	3	62	7	4	5	0	16	7	1	13	1	22
PM	3:00 PM	3	1	2	0	6	1	1	1	0	3	2	0	1	0	3	0	0	0	0	0
	3:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
	3:30 PM	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2
	3:45 PM	1	1	2	0	4	0	0	0	0	0	1	1	2	0	4	0	0	0	0	0
	4:00 PM	2	1	3	0	6	1	0	1	0	2	1	1	2	0	4	0	0	0	0	0
	4:15 PM	3	1	2	0	6	2	0	0	0	2	0	1	0	0	1	1	0	2	0	3
	4:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
	4:45 PM	3	1	3	0	7	2	0	1	0	3	1	1	1	0	3	0	0	1	0	1
	5:00 PM	1	0	2	0	3	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0
	5:15 PM	1	0	1	0	2	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0
	5:30 PM	2	1	1	0	4	2	0	1	0	3	0	1	0	0	1	0	0	0	0	0
	5:45 PM	7	1	5	2	15	5	1	3	2	11	2	0	2	0	4	0	0	0	0	0
	TOTAL	24	9	22	3	58	14	2	9	3	28	8	6	10	0	24	2	1	3	0	6

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South Mason

East/West Lassen

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	403	319	278	227
BIKES	15	0	10	15
BUSES	20	15	30	19

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	237	7:30:00 AM	255	7:15:00 AM	180	7:45:00 AM	244	7:45:00 AM
PM PK 15 MIN	446	5:30:00 PM	220	5:15:00 PM	219	3:00:00 PM	197	5:15:00 PM
AM PK HOUR	905	7:15:00 AM	968	7:15:00 AM	655	7:30:00 AM	935	7:15:00 AM
PM PK HOUR	1734	4:45:00 PM	811	3:15:00 PM	829	4:00:00 PM	739	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	86	683	106	875
8-9	59	610	64	733
9-10	42	466	53	561
3-4	94	1130	211	1435
4-5	86	1211	315	1612
5-6	100	1369	239	1708
TOTAL	467	5469	988	6924

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	41	849	72	962
8-9	50	811	56	917
9-10	74	725	86	885
3-4	66	665	80	811
4-5	79	607	90	776
5-6	80	597	95	772
TOTAL	390	4254	479	5123

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
1837	0	1	17	6
1650	2	0	12	1
1446	1	0	4	0
2246	1	1	1	1
2388	0	0	5	1
2480	1	0	8	0
12047	5	2	47	9

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	64	498	75	637
8-9	67	431	72	570
9-10	67	336	47	450
3-4	123	615	44	782
4-5	129	660	40	829
5-6	141	621	37	799
TOTAL	591	3161	315	4067

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	96	720	82	898
8-9	104	587	72	763
9-10	64	325	67	456
3-4	69	510	91	670
4-5	69	512	101	682
5-6	78	537	124	739
TOTAL	480	3191	537	4208

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
1535	1	0	10	10
1333	1	1	11	1
906	1	0	2	2
1452	0	0	1	0
1511	1	0	2	3
1538	2	0	6	0
8275	6	1	32	16

City Of Los Angeles

Department Of Transportation

PCE ADJUSTED

MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South: Mason

East/West: Lassen

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	403	319	278	227
BIKES	0	0	0	0
BUSES	20	15	30	19

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	245	7:30:00 AM	265	7:15:00 AM	191	7:45:00 AM	254	7:15:00 AM
PM PK 15 MIN	452	5:30:00 PM	229	5:15:00 PM	226	5:00:00 PM	204	5:15:00 PM
AM PK HOUR	943	7:15:00 AM	994	7:15:00 AM	686	7:30:00 AM	965	7:15:00 AM
PM PK HOUR	1762	4:45:00 PM	846	3:00:00 PM	847	4:15:00 PM	755	5:00:00 PM

NORTHBOUND Approach					SOUTHBOUND Approach					TOTAL	XING S/L		XING N/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	N-S	Ped	Sch	Ped	Sch
7-8	90	713	109	912	7-8	41	873	74	988	1899	0	0	0	0
8-9	63	643	70	776	8-9	51	838	58	946	1721	0	0	0	0
9-10	47	495	57	599	9-10	78	758	89	924	1523	0	0	0	0
3-4	98	1161	219	1478	3-4	68	695	84	846	2323	0	0	0	0
4-5	89	1235	323	1647	4-5	80	629	93	801	2448	0	0	0	0
5-6	101	1389	247	1736	5-6	82	616	97	794	2530	0	0	0	0
TOTAL	488	5635	1024	7146	TOTAL	398	4407	493	5298	12443	0	0	0	0

EASTBOUND Approach					WESTBOUND Approach					TOTAL	XING W/L		XING E/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	E-W	Ped	Sch	Ped	Sch
7-8	67	522	79	667	7-8	98	746	87	931	1598	0	0	0	0
8-9	74	456	76	606	8-9	108	604	76	787	1393	0	0	0	0
9-10	72	358	53	483	9-10	67	344	69	480	962	0	0	0	0
3-4	127	643	44	814	3-4	70	528	93	690	1504	0	0	0	0
4-5	134	672	42	847	4-5	72	525	102	699	1546	0	0	0	0
5-6	144	639	38	821	5-6	82	548	125	755	1576	0	0	0	0
TOTAL	618	3288	331	4236	TOTAL	496	3295	551	4341	8577	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS

Mason

5,123	**479**	**4,254**	**390**	**TOTAL**	**6,597**
2,359	265	1,869	225	**PM**	4,419
2,764	214	2,385	165	**AM**	2,178

Lassen

TOTAL	**4,137**	**591**	**3,161**	**315**	**4,067**
PM	2,104	393	1,896	121	**2,410**
AM	2,033	198	1,265	194	**1,657**

Chatsworth

SC

ALL HOURS

AM	**2,117**	221	1,632	264	1,653
PM	**2,091**	316	1,559	216	2,886
TOTAL	**4,208**	**537**	**3,191**	**480**	**4,539**

Lassen

2,843	**AM**	187	1,759	223	**2,169**
2,206	**PM**	280	3,710	765	**4,755**
5,049	**TOTAL**	**467**	**5,469**	**988**	**6,924**

Mason

Mason

1,760	**178**	**1,451**	**131**	**TOTAL**	**2,531**
792	99	608	85	**PM**	1,654
968	79	843	46	**AM**	877

Lassen

TOTAL	**1,625**	**200**	**1,127**	**116**	**1,443**
PM	713	135	620	41	**796**
AM	912	65	507	75	**647**

PEAK HOUR

AM 7:15 AM

PM 4:45 PM

AM	**935**	98	744	93	655
PM	**732**	132	525	75	963
TOTAL	**1,667**	**230**	**1,269**	**168**	**1,618**

Lassen

1,011	**AM**	89	714	102	**905**
724	**PM**	89	1,387	258	**1,734**
1,735	**Total**	**178**	**2,101**	**360**	**2,639**

Mason

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
8/29/19	NORTH & SOUTH:	Mason	LOCATION #:	4
THURSDAY	EAST & WEST:	Lassen	CONTROL:	SIGNAL

PCE Adjusted	**NOTES:**								AM		▲ N	
	Class	1	2	3	4	5	6		PM			
	Factor	1	1.5	2	3	2	2		MD	◄ W		E ►
									OTHER		S	
									OTHER		▼	

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Lassen			Lassen								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0						
AM	7:00 AM	19	141	25	5	227	10	14	116	21	23	146	12	757					0
	7:15 AM	26	197	20	9	239	18	7	121	19	28	205	22	907					0
	7:30 AM	28	183	35	18	201	25	26	138	17	24	204	20	916					0
	7:45 AM	18	192	29	9	207	22	21	148	23	24	193	34	917					0
	8:00 AM	21	173	23	10	222	16	16	127	21	20	168	28	842					0
	8:15 AM	18	183	14	12	208	15	19	113	21	35	178	19	833					0
	8:30 AM	8	152	19	9	211	11	23	108	22	29	145	14	747					0
	8:45 AM	16	135	15	20	198	17	17	109	13	25	114	16	693					0
	9:00 AM	12	118	12	18	205	23	24	97	17	25	103	17	668					0
	9:15 AM	10	128	12	27	201	23	11	70	16	10	80	18	604					0
	9:30 AM	15	132	14	17	166	22	16	97	10	20	66	12	585					0
	9:45 AM	12	118	19	16	186	22	22	95	11	14	96	22	629					0
	VOLUMES	200	1,850	236	169	2,468	220	213	1,336	207	273	1,694	231	9,095	0	0	0	0	0
	APPROACH %	9%	81%	10%	6%	86%	8%	12%	76%	12%	12%	77%	11%						
	APP/DEPART	2,286	/	2,294	2,857	/	2,948	1,755	/	1,741	2,197	/	2,113	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	92	745	107	46	868	80	68	533	79	95	768	103	3,582					
	APPROACH %	10%	79%	11%	5%	87%	8%	10%	78%	12%	10%	80%	11%						
	PEAK HR FACTOR		0.962			0.937			0.892			0.952		0.976					
	APP/DEPART	943	/	915	994	/	1,041	680	/	686	965	/	940	0					
PM	03:00 PM	32	264	41	22	163	18	53	157	16	12	115	20	911					0
	3:15 PM	24	250	49	17	187	25	32	149	18	19	149	22	939					0
	3:30 PM	19	339	55	13	177	17	22	172	3	24	151	26	1,018					0
	3:45 PM	24	309	75	16	168	24	20	166	7	15	114	25	960					0
	4:00 PM	30	301	94	21	157	23	33	174	10	12	146	28	1,026					0
	4:15 PM	24	281	70	22	159	17	41	160	12	23	120	21	947					0
	4:30 PM	18	307	92	17	153	26	26	175	7	17	134	18	988					0
	4:45 PM	18	346	68	20	160	28	35	163	14	21	126	36	1,033					0
	5:00 PM	20	359	59	21	142	29	35	169	13	21	147	26	1,039					0
	5:15 PM	28	358	56	23	163	25	33	155	6	22	148	34	1,048					0
	5:30 PM	23	345	84	23	165	20	35	151	10	17	114	37	1,022					0
	5:45 PM	30	328	49	15	147	24	42	164	10	24	139	28	997					0
	VOLUMES	288	3,785	788	229	1,939	273	405	1,953	124	223	1,601	320	11,925	0	0	0	0	0
	APPROACH %	6%	78%	16%	9%	79%	11%	16%	79%	5%	10%	75%	15%						
	APP/DEPART	4,860	/	4,509	2,441	/	2,286	2,481	/	2,969	2,144	/	2,162	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	89	1,407	266	87	629	101	137	638	42	80	535	133	4,141					
	APPROACH %	5%	80%	15%	11%	77%	12%	17%	78%	5%	11%	72%	18%						
	PEAK HR FACTOR		0.974			0.971			0.943			0.918		0.988					
	APP/DEPART	1,762	/	1,677	816	/	751	817	/	990	747	/	724	0					

Mason

NORTH SIDE

Lassen WEST SIDE

EAST SIDE **Lassen**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T219

DATE: Thu, Aug 29, 19	LOCATION:	Chatsworth	PROJECT #:	SC
	NORTH & SOUTH:	Mason	LOCATION #:	5
	EAST & WEST:	Plummer	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲
N
◄ W
E ►
S
▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Plummer			WESTBOUND Plummer			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
AM	7:00 AM	16	155	30	18	227	20	11	52	13	42	113	13	710
	7:15 AM	19	209	25	10	258	16	5	61	26	117	126	16	888
	7:30 AM	21	202	27	13	237	15	7	108	31	97	146	17	921
	7:45 AM	27	221	51	18	224	17	10	106	49	78	161	17	979
	8:00 AM	18	177	26	14	256	17	10	74	38	90	133	15	868
	8:15 AM	13	175	29	13	210	20	7	80	23	80	118	14	782
	8:30 AM	11	143	18	14	230	13	7	59	17	69	88	8	677
	8:45 AM	8	140	20	10	205	23	9	61	19	71	78	14	658
	9:00 AM	7	103	27	21	210	22	13	66	14	53	75	7	618
	9:15 AM	3	112	19	18	178	15	10	43	6	29	55	21	509
	9:30 AM	9	120	21	15	148	22	5	49	17	24	62	16	508
	9:45 AM	7	103	19	16	147	19	11	57	10	20	42	15	466
	VOLUMES	159	1,860	312	180	2,530	219	105	816	263	770	1,197	173	8,584
	APPROACH %	7%	80%	13%	6%	86%	7%	9%	69%	22%	36%	56%	8%	
	APP/DEPART	2,331	/	2,138	2,929	/	3,563	1,184	/	1,308	2,140	/	1,575	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	85	809	129	55	975	65	32	349	144	382	566	65	3,656
	APPROACH %	8%	79%	13%	5%	89%	6%	6%	66%	27%	38%	56%	6%	
	PEAK HR FACTOR		0.855			0.954			0.795			0.974		0.934
	APP/DEPART	1,023	/	906	1,095	/	1,501	525	/	533	1,013	/	716	0
PM	03:00 PM	18	239	42	19	161	15	27	101	25	27	89	23	786
	3:15 PM	11	235	30	20	184	10	26	108	17	37	88	30	796
	3:30 PM	13	322	40	23	201	10	68	193	41	24	86	41	1,062
	3:45 PM	11	273	37	30	180	17	38	147	17	28	76	42	896
	4:00 PM	16	288	60	23	173	11	61	143	26	29	74	35	939
	4:15 PM	18	277	52	26	166	12	32	123	11	22	81	30	850
	4:30 PM	27	302	49	21	180	11	49	145	19	30	77	39	949
	4:45 PM	15	354	58	18	186	8	29	120	22	23	93	37	963
	5:00 PM	20	369	46	22	183	6	49	192	35	31	78	36	1,067
	5:15 PM	13	335	47	23	180	8	33	129	21	34	92	32	947
	5:30 PM	15	302	44	27	158	6	36	136	25	41	67	45	902
	5:45 PM	15	369	53	24	151	13	30	87	18	35	83	25	903
	VOLUMES	192	3,665	558	276	2,103	127	478	1,624	277	361	984	415	11,060
	APPROACH %	4%	83%	13%	11%	84%	5%	20%	68%	12%	21%	56%	24%	
	APP/DEPART	4,415	/	4,558	2,506	/	2,740	2,379	/	2,459	1,760	/	1,303	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	75	1,360	200	84	729	33	160	586	97	118	340	144	3,926
	APPROACH %	5%	83%	12%	10%	86%	4%	19%	70%	12%	20%	56%	24%	
	PEAK HR FACTOR		0.940			0.998			0.764			0.953		0.920
	APP/DEPART	1,635	/	1,664	846	/	944	843	/	870	602	/	448	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1

Mason

NORTH SIDE

Plummer WEST SIDE EAST SIDE **Plummer**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	2	0	2	0	4	1	0	1	0	2	0	0	0	0	0	1	0	1	0	2
	7:15 AM	1	2	0	1	4	0	1	0	1	2	1	1	0	0	2	0	0	0	0	0
	7:30 AM	3	3	4	0	10	3	1	3	0	7	0	0	0	0	0	0	2	1	0	3
	7:45 AM	2	6	4	1	13	0	0	1	0	1	0	4	1	1	6	2	2	2	0	6
	8:00 AM	1	4	1	3	9	0	0	0	1	1	1	0	0	1	2	0	4	1	1	6
	8:15 AM	2	4	0	0	6	2	0	0	0	2	0	1	0	0	1	0	3	0	0	3
	8:30 AM	0	1	1	2	4	0	0	1	0	1	0	0	0	1	1	0	1	0	1	2
	8:45 AM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
	9:00 AM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
	TOTAL	12	22	15	8	57	7	4	9	3	23	2	6	1	3	12	3	12	5	2	22
PM	3:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	3:15 PM	2	1	0	0	3	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0
	3:30 PM	0	2	1	0	3	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	3	0	1	4	0	2	0	0	2	0	0	0	0	0	0	1	0	1	2
	4:15 PM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1
	4:30 PM	1	3	0	3	7	1	0	0	1	2	0	0	0	1	1	0	3	0	1	4
	4:45 PM	2	5	2	2	11	1	3	1	2	7	1	2	1	0	4	0	0	0	0	0
	5:00 PM	0	5	1	2	8	0	1	1	0	2	0	2	0	2	4	0	2	0	0	2
	5:15 PM	2	3	2	1	8	1	1	1	1	4	1	0	1	0	2	0	2	0	0	2
	5:30 PM	0	2	2	1	5	0	0	2	0	2	0	0	0	0	0	0	2	0	1	3
	5:45 PM	1	0	1	0	2	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
	TOTAL	9	25	10	10	54	5	10	7	4	26	4	4	2	3	13	0	11	1	3	15

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Plummer

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	366	330	228	255
BIKES	3	6	10	6
BUSES	12	18	21	28

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	299	7:45:00 AM	287	8:00:00 AM	165	7:45:00 AM	260	7:30:00 AM
PM PK 15 MIN	437	5:45:00 PM	234	3:30:00 PM	302	5:00:00 PM	158	5:15:00 PM
AM PK HOUR	1023	7:15:00 AM	1095	7:15:00 AM	543	7:30:00 AM	1013	7:15:00 AM
PM PK HOUR	1635	4:30:00 PM	882	3:15:00 PM	900	3:30:00 PM	609	4:45:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	83	787	133	1003
8-9	50	635	93	778
9-10	26	438	86	550
3-4	53	1069	149	1271
4-5	76	1221	219	1516
5-6	63	1375	190	1628
TOTAL	351	5525	870	6746

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	59	946	68	1073
8-9	51	901	73	1025
9-10	70	683	78	831
3-4	92	726	52	870
4-5	88	705	42	835
5-6	96	672	33	801
TOTAL	456	4633	346	5435

	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
	2076	2	4	4	3
	1803	1	8	2	0
	1381	1	0	1	0
	2141	3	0	1	0
	2351	5	5	2	0
	2429	2	6	2	0
	12181	14	23	12	3

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	33	327	119	479
8-9	33	274	97	404
9-10	39	215	47	301
3-4	159	549	100	808
4-5	171	531	78	780
5-6	148	544	99	791
TOTAL	583	2440	540	3563

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	334	546	63	943
8-9	310	417	51	778
9-10	126	234	59	419
3-4	116	339	136	591
4-5	104	325	141	570
5-6	141	320	138	599
TOTAL	1131	2181	588	3900

	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
	1422	1	0	5	4
	1182	1	2	2	1
	720	1	0	2	0
	1399	0	0	1	1
	1350	3	2	1	0
	1390	1	1	5	0
	7463	7	5	16	6

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Plummer

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	366	330	228	255
BIKES	0	0	0	0
BUSES	12	18	21	28

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	307	7:45:00 AM	299	7:15:00 AM	168	7:45:00 AM	268	7:15:00 AM
PM PK 15 MIN	444	5:45:00 PM	240	3:30:00 PM	308	5:00:00 PM	161	5:15:00 PM
AM PK HOUR	1061	7:15:00 AM	1132	7:15:00 AM	562	7:30:00 AM	1047	7:15:00 AM
PM PK HOUR	1662	4:30:00 PM	913	3:15:00 PM	924	3:30:00 PM	624	4:45:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	89	814	139	1042
8-9	56	661	97	814
9-10	28	460	88	575
3-4	56	1092	157	1305
4-5	78	1242	229	1549
5-6	65	1392	201	1658
TOTAL	372	5661	909	6941

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	64	977	71	1111
8-9	54	927	77	1058
9-10	77	707	80	864
3-4	98	750	54	902
4-5	92	726	45	862
5-6	102	686	35	823
TOTAL	486	4772	361	5618

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2152	0	0	0	0
1872	0	0	0	0
1439	0	0	0	0
2206	0	0	0	0
2411	0	0	0	0
2481	0	0	0	0
12559	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	34	339	123	496
8-9	37	292	107	435
9-10	40	231	54	325
3-4	163	565	103	830
4-5	172	548	83	802
5-6	151	559	102	811
TOTAL	596	2533	570	3698

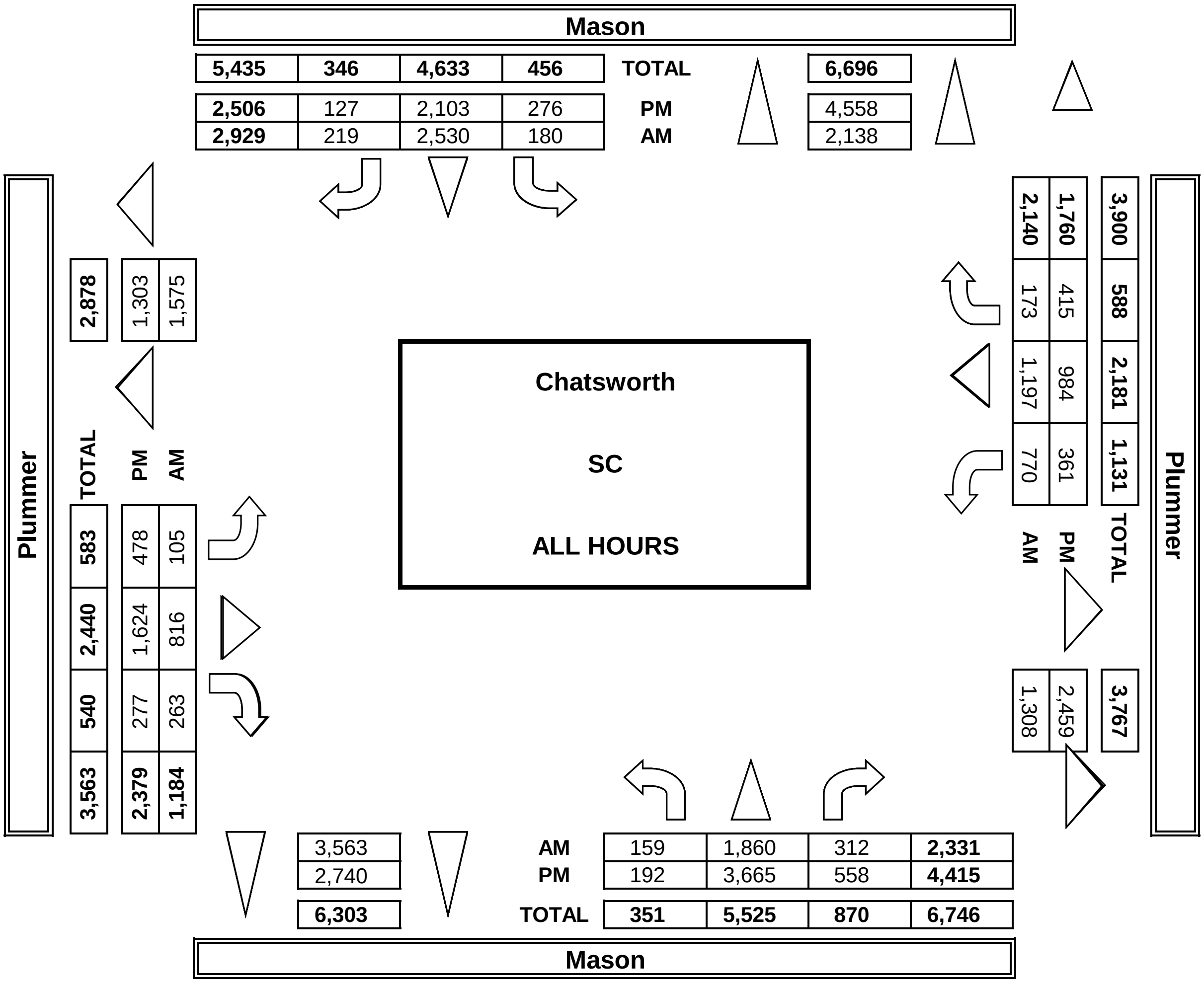
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	346	564	68	977
8-9	334	433	56	822
9-10	131	248	64	442
3-4	118	352	143	613
4-5	107	339	147	592
5-6	143	328	140	611
TOTAL	1177	2263	616	4056

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
1472	0	0	0	0
1257	0	0	0	0
766	0	0	0	0
1443	0	0	0	0
1394	0	0	0	0
1422	0	0	0	0
7754	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Chatsworth

SC

ALL HOURS

Mason

5,435	**346**	**4,633**	**456**	**TOTAL**	**6,696**
2,506	127	2,103	276	**PM**	4,558
2,929	219	2,530	180	**AM**	2,138

Plummer

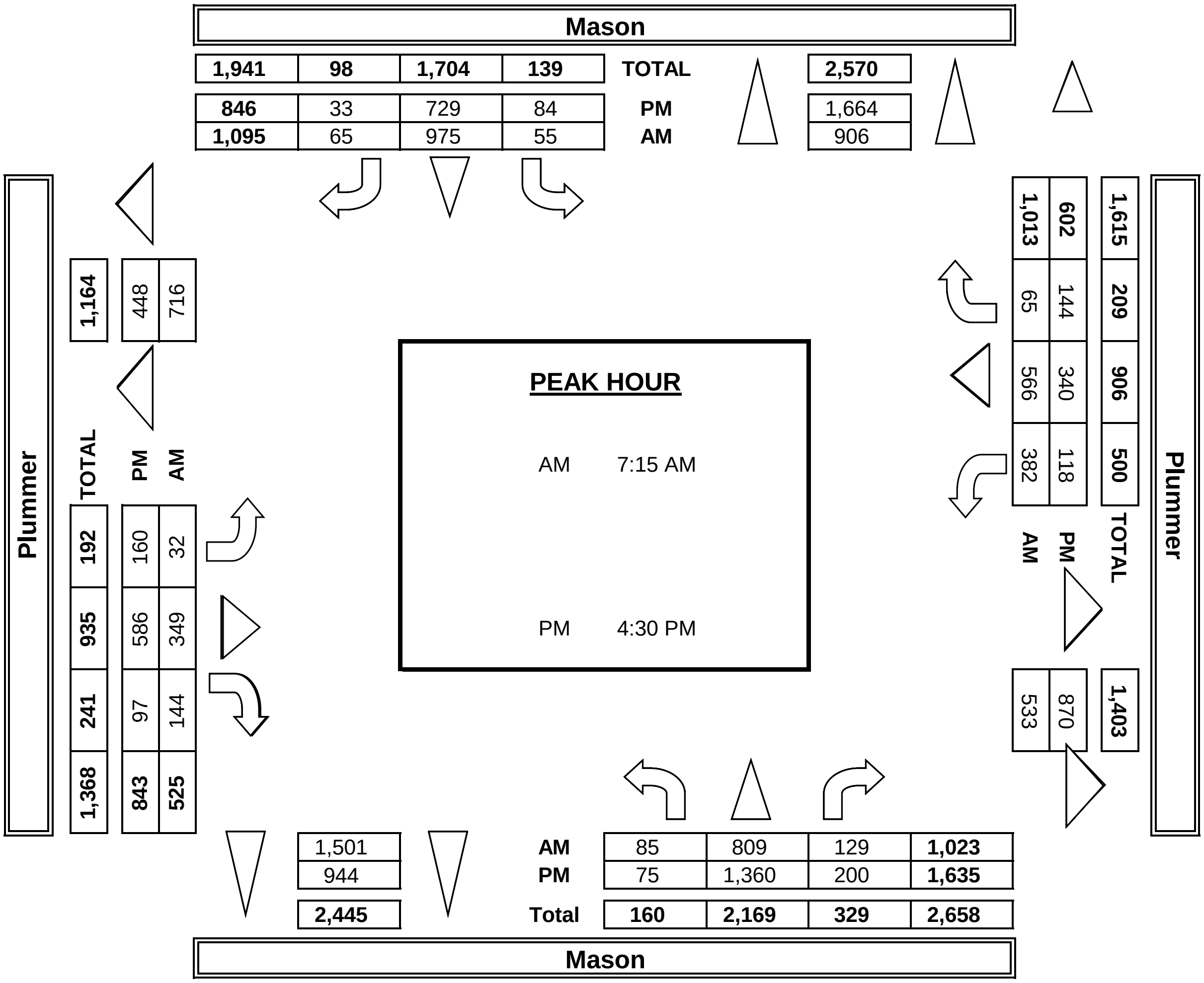
TOTAL	**2,878**	**583**	**2,440**	**540**	**3,563**
PM	1,303	478	1,624	277	**2,379**
AM	1,575	105	816	263	**1,184**

Plummer

TOTAL	**3,900**	**588**	**2,181**	**1,131**	**3,767**
PM	**1,760**	415	984	361	2,459
AM	**2,140**	173	1,197	770	1,308

Mason

3,563	**AM**	159	1,860	312	**2,331**
2,740	**PM**	192	3,665	558	**4,415**
6,303	**TOTAL**	**351**	**5,525**	**870**	**6,746**



PEAK HOUR

AM 7:15 AM

PM 4:30 PM

Mason

1,941	**98**	**1,704**	**139**	**TOTAL**	**2,570**
846	33	729	84	**PM**	1,664
1,095	65	975	55	**AM**	906

Plummer

TOTAL	**1,164**	**192**	**935**	**241**	**1,368**
PM	448	160	586	97	**843**
AM	716	32	349	144	**525**

Plummer

TOTAL	**1,615**	**209**	**906**	**500**	**1,403**
PM	**602**	144	340	118	870
AM	**1,013**	65	566	382	533

Mason

1,501	**AM**	85	809	129	**1,023**
944	**PM**	75	1,360	200	**1,635**
2,445	**Total**	**160**	**2,169**	**329**	**2,658**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
8/29/19	NORTH & SOUTH:	Mason	LOCATION #:	5
THURSDAY	EAST & WEST:	Plummer	CONTROL:	SIGNAL

PCE Adjusted	**NOTES:**											
	Class	1	2	3	4	5	6		AM		▲ N	
	Factor	1	1.5	2	3	2	2		PM	◄ W		E ►
									MD			
									OTHER		S ▼	
									OTHER			

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Plummer			WESTBOUND Plummer				**U-TURNS**				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0						
AM	7:00 AM	17	163	33	19	237	21	12	58	14	43	118	15	746					0
	7:15 AM	22	217	27	12	270	17	5	65	28	121	131	17	929					0
	7:30 AM	23	209	27	13	243	16	7	109	31	100	150	18	944					0
	7:45 AM	28	226	53	20	228	18	11	108	50	83	166	18	1,006					0
	8:00 AM	21	184	27	15	264	18	11	79	40	95	136	15	903					0
	8:15 AM	15	184	30	14	217	21	9	84	26	90	122	16	825					0
	8:30 AM	12	150	19	15	237	14	8	64	19	72	96	8	711					0
	8:45 AM	9	144	22	11	209	25	9	66	23	78	80	17	690					0
	9:00 AM	8	107	28	24	217	23	13	73	17	55	75	7	643					0
	9:15 AM	4	119	20	21	184	17	10	47	7	30	60	24	540					0
	9:30 AM	10	127	21	16	154	22	5	52	19	26	68	17	535					0
	9:45 AM	7	108	20	17	153	19	12	61	12	21	45	16	488					0
	VOLUMES	173	1,935	323	195	2,610	228	111	862	283	810	1,244	187	8,957	0	0	0	0	0
	APPROACH %	7%	80%	13%	6%	86%	8%	9%	69%	23%	36%	56%	8%						
	APP/DEPART	2,430	/	2,232	3,032	/	3,702	1,255	/	1,380	2,240	/	1,644	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	93	836	133	60	1,004	68	34	361	148	398	581	68	3,781					
	APPROACH %	9%	79%	12%	5%	89%	6%	6%	67%	27%	38%	56%	6%						
	PEAK HR FACTOR		0.865			0.948			0.807			0.976		0.940					
	APP/DEPART	1,061	/	937	1,132	/	1,550	542	/	553	1,047	/	742	0					
PM	03:00 PM	19	245	43	20	168	17	28	106	26	27	93	24	815					0
	3:15 PM	12	242	32	22	192	10	27	112	17	39	90	32	825					0
	3:30 PM	13	329	43	24	206	11	70	197	42	24	91	42	1,088					0
	3:45 PM	12	277	39	33	185	17	38	150	18	29	79	46	922					0
	4:00 PM	17	294	65	25	179	12	61	147	27	29	77	37	968					0
	4:15 PM	19	282	56	26	171	13	33	130	12	23	87	31	881					0
	4:30 PM	28	307	50	22	185	12	49	149	20	32	80	41	972					0
	4:45 PM	15	359	59	19	192	9	29	123	24	24	96	38	985					0
	5:00 PM	21	375	49	24	187	6	49	194	36	32	81	37	1,087					0
	5:15 PM	14	340	49	26	184	9	34	135	21	34	94	32	969					0
	5:30 PM	16	305	48	28	162	6	37	141	27	43	70	46	926					0
	5:45 PM	15	373	56	25	154	14	31	90	19	35	84	26	921					0
	VOLUMES	199	3,726	586	292	2,162	133	485	1,671	287	368	1,019	430	11,356	0	0	0	0	0
	APPROACH %	4%	83%	13%	11%	84%	5%	20%	68%	12%	20%	56%	24%						
	APP/DEPART	4,511	/	4,641	2,586	/	2,816	2,443	/	2,549	1,816	/	1,351	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	77	1,380	206	90	748	35	161	599	100	121	350	148	4,012					
	APPROACH %	5%	83%	12%	10%	86%	4%	19%	70%	12%	19%	57%	24%						
	PEAK HR FACTOR		0.937			0.998			0.773			0.966		0.923					
	APP/DEPART	1,662	/	1,689	872	/	968	860	/	895	618	/	461	0					

Mason

NORTH SIDE

Plummer WEST SIDE

EAST SIDE **Plummer**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T219

DATE:
Thu, Aug 29, 19

LOCATION: Chatsworth
NORTH & SOUTH: Mason
EAST & WEST: Nordhoff

PROJECT #: SC
LOCATION #: 6
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲
N
◄ W
E ►
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☑dd U-Turns to Left Turns

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Nordhoff			WESTBOUND Nordhoff				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	3	0	1	3	0		0	0	0	0	
AM	7:00 AM	16	210	27	5	201	33	22	78	12	42	163	15	824	0	0	0	0	0
	7:15 AM	19	272	30	7	291	45	19	112	2	49	207	18	1,071	0	0	1	0	1
	7:30 AM	24	270	28	7	291	45	30	131	17	49	207	18	1,117	0	0	0	0	0
	7:45 AM	23	286	36	11	266	79	36	139	24	31	291	10	1,232	0	0	0	0	0
	8:00 AM	22	229	37	9	286	70	23	90	20	44	267	19	1,116	0	0	0	0	0
	8:15 AM	17	194	37	11	202	64	25	136	16	49	226	19	996	0	0	0	0	0
	8:30 AM	22	162	39	10	250	47	20	110	25	45	170	16	916	0	0	0	0	0
	8:45 AM	26	154	26	11	232	31	19	103	15	36	146	22	821	0	0	0	0	0
	9:00 AM	20	141	34	8	211	33	15	82	17	35	109	17	722	0	0	0	0	0
	9:15 AM	9	116	34	5	161	25	18	89	12	26	113	10	618	0	0	0	0	0
	9:30 AM	14	122	25	10	156	22	18	96	16	31	94	13	617	0	0	0	0	0
	9:45 AM	15	117	24	8	131	23	24	93	13	18	100	10	576	0	0	1	0	1
	VOLUMES	227	2,273	377	102	2,678	517	269	1,259	189	455	2,093	187	10,626	0	0	2	0	2
	APPROACH %	8%	79%	13%	3%	81%	16%	16%	73%	11%	17%	77%	7%						
	APP/DEPART	2,877	/	2,727	3,297	/	3,322	1,717	/	1,738	2,735	/	2,839	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	88	1,057	131	34	1,134	239	108	472	63	173	972	65	4,536					
	APPROACH %	7%	83%	10%	2%	81%	17%	17%	73%	10%	14%	80%	5%						
	PEAK HR FACTOR		0.925			0.964			0.808			0.911		0.920					
	APP/DEPART	1,276	/	1,229	1,407	/	1,370	643	/	637	1,210	/	1,300	0					
PM	03:00 PM	9	199	21	10	194	23	43	145	30	32	107	14	827	0	0	0	0	0
	3:15 PM	16	217	31	18	198	16	46	148	33	24	135	18	900	0	0	1	0	1
	3:30 PM	16	237	21	26	276	26	76	231	74	33	118	18	1,152	0	0	0	0	0
	3:45 PM	20	212	32	15	238	18	63	197	41	38	113	15	1,002	0	0	0	0	0
	4:00 PM	17	227	33	22	218	30	61	233	45	55	150	22	1,113	0	0	0	0	0
	4:15 PM	17	238	29	19	191	28	62	202	34	30	124	13	987	0	0	0	0	0
	4:30 PM	20	225	15	16	236	35	55	271	60	49	139	16	1,137	0	0	0	0	0
	4:45 PM	25	276	19	16	199	21	69	244	52	42	122	14	1,099	0	0	0	0	0
	5:00 PM	19	258	32	24	270	19	66	278	86	53	136	28	1,269	0	0	0	0	0
	5:15 PM	19	267	16	12	234	28	70	272	56	48	151	10	1,183	0	0	0	0	0
	5:30 PM	15	246	30	17	198	23	79	262	44	40	110	16	1,080	0	0	0	0	0
	5:45 PM	10	276	26	16	189	29	68	221	41	35	124	17	1,052	0	0	0	0	0
	VOLUMES	203	2,878	305	211	2,641	296	758	2,704	596	479	1,529	201	12,801	0	0	1	0	1
	APPROACH %	6%	85%	9%	7%	84%	9%	19%	67%	15%	22%	69%	9%						
	APP/DEPART	3,386	/	3,836	3,148	/	3,716	4,058	/	3,220	2,209	/	2,029	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	83	1,026	82	68	939	103	260	1,065	254	192	548	68	4,688					
	APPROACH %	7%	86%	7%	6%	85%	9%	16%	67%	16%	24%	68%	8%						
	PEAK HR FACTOR		0.930			0.887			0.918			0.931		0.924					
	APP/DEPART	1,191	/	1,354	1,110	/	1,385	1,579	/	1,215	808	/	734	0					

Mason

NORTH SIDE

Nordhoff WEST SIDE

EAST SIDE **Nordhoff**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	6	0	1	1	8	4	0	1	0	5	1	0	0	1	2	1	0	0	0	1
	7:15 AM	5	0	0	3	8	5	0	0	2	7	0	0	0	0	0	0	0	0	1	1
	7:30 AM	5	0	0	1	6	5	0	0	1	6	0	0	0	0	0	0	0	0	0	0
	7:45 AM	1	1	1	4	7	1	1	1	3	6	0	0	0	1	1	0	0	0	0	0
	8:00 AM	1	2	0	4	7	1	1	0	2	4	0	1	0	1	2	0	0	0	1	1
	8:15 AM	1	2	0	1	4	1	2	0	0	3	0	0	0	1	1	0	0	0	0	0
	8:30 AM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0
	8:45 AM	6	1	1	1	9	5	1	1	1	8	0	0	0	0	0	1	0	0	0	1
	9:00 AM	4	6	2	1	13	2	5	2	1	10	2	1	0	0	3	0	0	0	0	0
	9:15 AM	3	2	5	2	12	3	2	5	1	11	0	0	0	0	0	0	0	0	1	1
	9:30 AM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1
	9:45 AM	1	3	4	3	11	1	3	4	1	9	0	0	0	1	1	0	0	0	1	1
	TOTAL	35	18	14	22	89	29	16	14	13	72	3	2	0	5	10	3	0	0	4	7
PM	3:00 PM	6	1	0	4	11	4	1	0	4	9	0	0	0	0	0	2	0	0	0	2
	3:15 PM	3	1	1	2	7	3	1	1	2	7	0	0	0	0	0	0	0	0	0	0
	3:30 PM	2	2	1	2	7	1	0	1	0	2	1	1	0	1	3	0	1	0	1	2
	3:45 PM	1	5	3	3	12	1	2	3	2	8	0	1	0	1	2	0	2	0	0	2
	4:00 PM	3	3	2	5	13	3	3	2	3	11	0	0	0	2	2	0	0	0	0	0
	4:15 PM	4	1	0	3	8	2	1	0	3	6	1	0	0	0	1	1	0	0	0	1
	4:30 PM	1	0	2	8	11	1	0	2	6	9	0	0	0	1	1	0	0	0	1	1
	4:45 PM	1	1	1	4	7	1	0	1	3	5	0	1	0	1	2	0	0	0	0	0
	5:00 PM	3	3	6	6	18	0	2	3	5	10	2	1	2	1	6	1	0	1	0	2
	5:15 PM	1	2	4	0	7	1	0	4	0	5	0	2	0	0	2	0	0	0	0	0
	5:30 PM	2	2	0	0	4	2	1	0	0	3	0	1	0	0	1	0	0	0	0	0
	5:45 PM	0	1	0	4	5	0	1	0	2	3	0	0	0	0	0	0	0	0	2	2
	TOTAL	27	22	20	41	110	19	12	17	30	78	4	7	2	7	20	4	3	1	4	12

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Nordhoff

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	232	323	309	227
BIKES	2	12	9	7
BUSES	11	10	31	40

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	345	7:45:00 AM	365	8:00:00 AM	199	7:45:00 AM	332	7:45:00 AM
PM PK 15 MIN	320	4:45:00 PM	328	5:00:00 PM	430	5:00:00 PM	227	4:00:00 PM
AM PK HOUR	1276	7:15:00 AM	1407	7:15:00 AM	687	7:30:00 AM	1230	7:30:00 AM
PM PK HOUR	1222	4:45:00 PM	1110	4:30:00 PM	1579	4:30:00 PM	808	4:30:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	82	1038	121	1241
8-9	87	739	139	965
9-10	58	496	117	671
3-4	61	865	105	1031
4-5	79	966	96	1141
5-6	63	1047	104	1214
TOTAL	430	5151	682	6263

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	30	1049	202	1281
8-9	41	970	212	1223
9-10	31	659	103	793
3-4	69	906	83	1058
4-5	73	844	114	1031
5-6	69	891	99	1059
TOTAL	313	5319	813	6445

Hours	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
7-8	2522	1	0	15	1
8-9	2188	4	0	8	1
9-10	1464	11	0	6	1
3-4	2089	4	3	9	2
4-5	2172	4	0	7	1
5-6	2273	4	0	3	1
TOTAL	12708	28	3	48	7

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	107	460	55	622
8-9	87	439	76	602
9-10	75	360	58	493
3-4	228	721	178	1127
4-5	247	950	191	1388
5-6	283	1033	227	1543
TOTAL	1027	3963	785	5775

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	171	868	61	1100
8-9	174	809	76	1059
9-10	110	416	50	576
3-4	127	473	65	665
4-5	176	535	65	776
5-6	176	521	71	768
TOTAL	934	3622	388	4944

Hours	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
7-8	1722	6	1	2	0
8-9	1661	4	1	1	0
9-10	1069	3	2	11	0
3-4	1792	8	1	5	0
4-5	2164	15	1	5	0
5-6	2311	7	2	7	1
TOTAL	10719	43	8	31	1

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Mason

East/West: Nordhoff

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	232	323	309	227
BIKES	0	0	0	0
BUSES	11	10	31	40

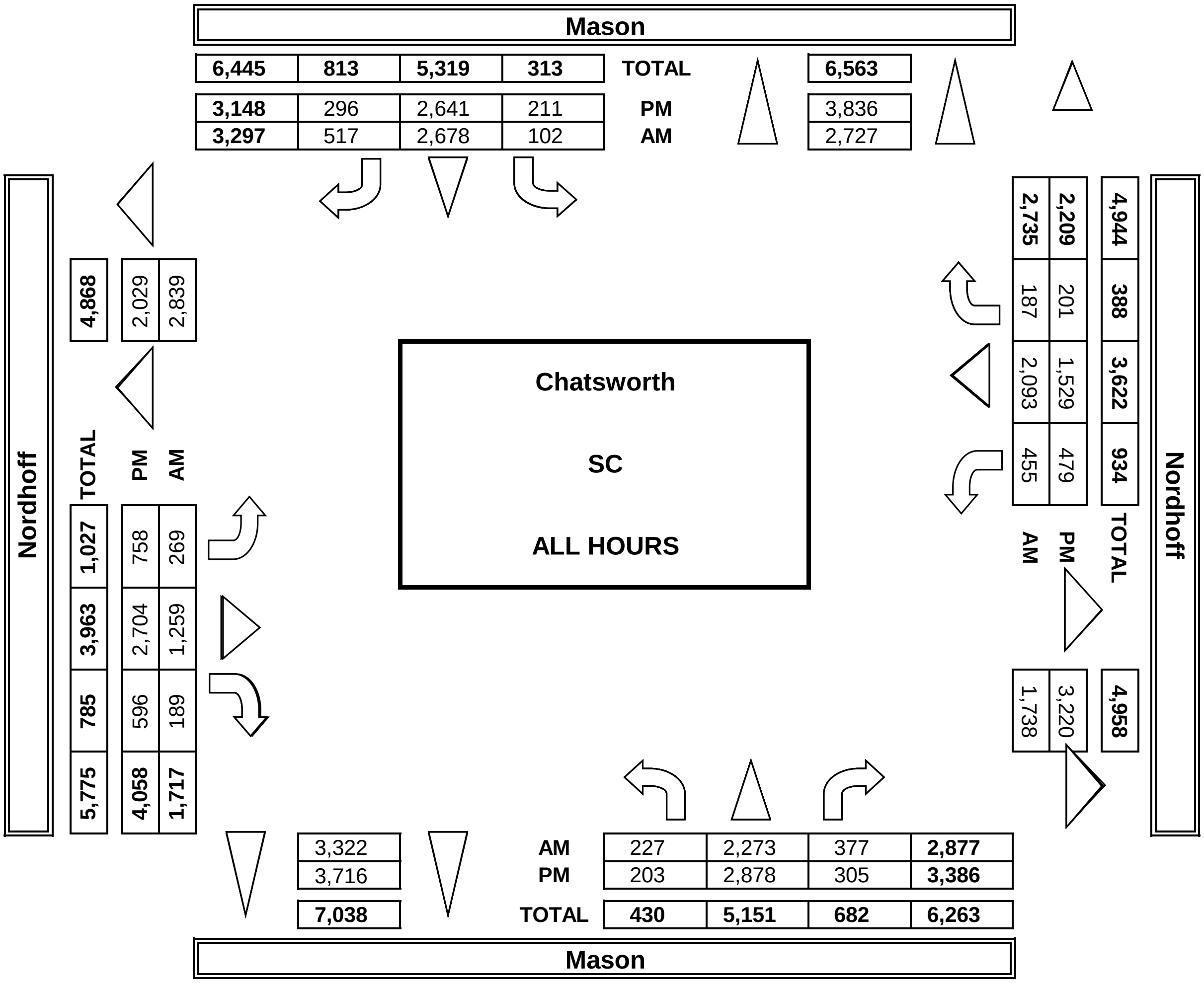
	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	350	7:45:00 AM	377	8:00:00 AM	208	7:45:00 AM	343	7:45:00 AM
PM PK 15 MIN	325	4:45:00 PM	335	5:00:00 PM	436	5:00:00 PM	233	4:00:00 PM
AM PK HOUR	1297	7:15:00 AM	1458	7:15:00 AM	718	7:30:00 AM	1269	7:30:00 AM
PM PK HOUR	1237	4:45:00 PM	1127	3:30:00 PM	1617	4:30:00 PM	830	4:30:00 PM

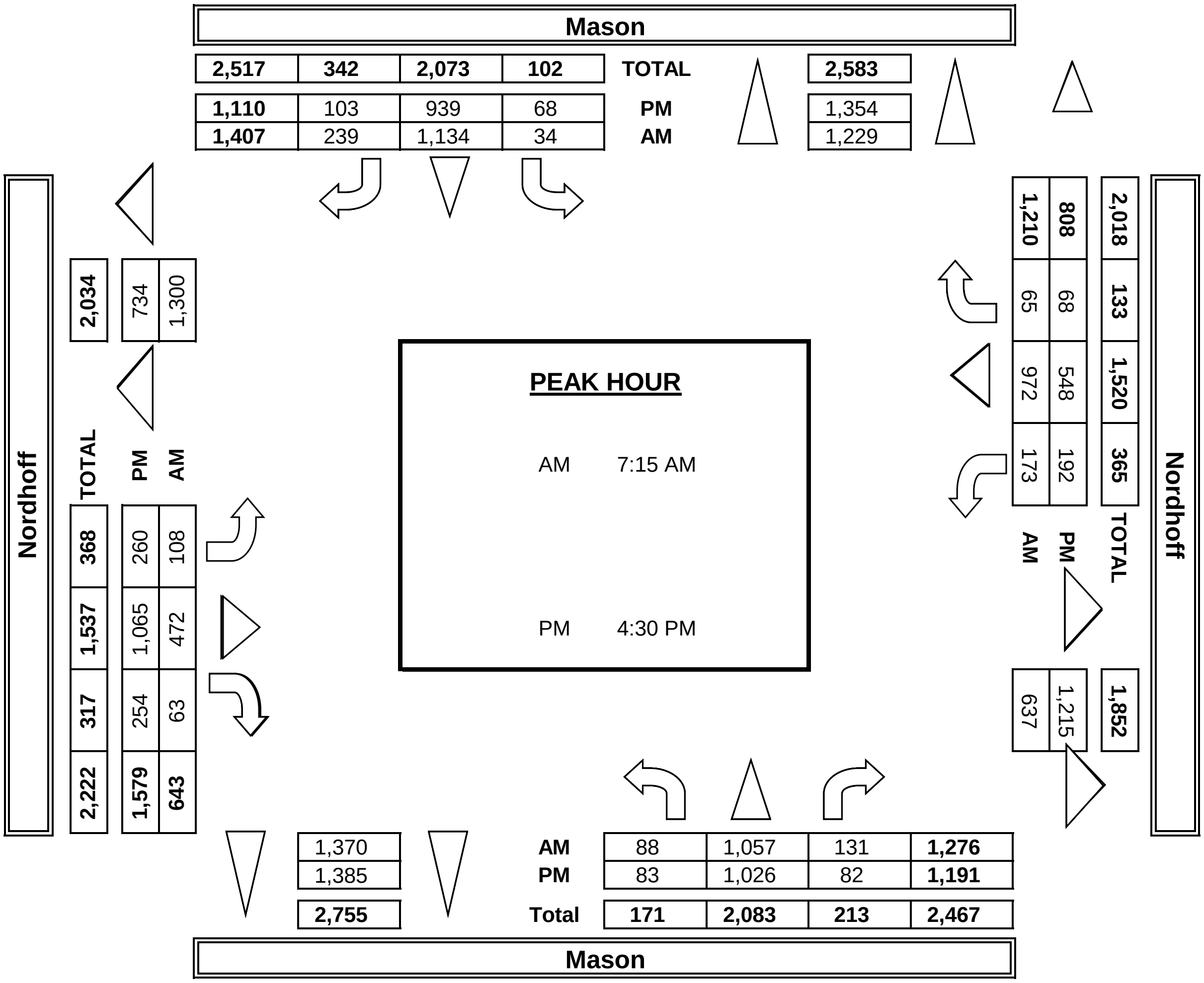
NORTHBOUND Approach					SOUTHBOUND Approach					TOTAL	XING S/L		XING N/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	N-S	Ped	Sch	Ped	Sch
7-8	84	1059	121	1264	7-8	32	1080	216	1328	2592	0	0	0	0
8-9	89	758	141	987	8-9	42	997	230	1268	2255	0	0	0	0
9-10	61	512	119	691	9-10	32	678	111	821	1512	0	0	0	0
3-4	63	887	109	1059	3-4	70	924	89	1083	2141	0	0	0	0
4-5	83	982	97	1162	4-5	74	858	116	1048	2209	0	0	0	0
5-6	66	1059	105	1229	5-6	71	899	101	1070	2299	0	0	0	0
TOTAL	444	5256	690	6390	TOTAL	320	5435	863	6617	13007	0	0	0	0

EASTBOUND Approach					WESTBOUND Approach					TOTAL	XING W/L		XING E/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	E-W	Ped	Sch	Ped	Sch
7-8	113	475	60	648	7-8	176	895	61	1132	1780	0	0	0	0
8-9	92	462	82	635	8-9	178	839	79	1095	1730	0	0	0	0
9-10	80	376	64	520	9-10	114	434	52	599	1118	0	0	0	0
3-4	234	745	181	1159	3-4	128	496	67	690	1848	0	0	0	0
4-5	255	977	195	1427	4-5	176	555	66	797	2224	0	0	0	0
5-6	291	1054	229	1574	5-6	178	536	72	786	2360	0	0	0	0
TOTAL	1064	4087	810	5961	TOTAL	949	3753	396	5098	11058	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC
8/29/19	NORTH & SOUTH:	Mason	LOCATION #:	6
THURSDAY	EAST & WEST:	Nordhoff	CONTROL:	SIGNAL

	NOTES:									AM		▲	
PCE Adjusted	Class	1	2	3	4	5	6			PM		N	
	Factor	1	1.5	2	3	2	2			MD	◄ W		E ►
										OTHER		S	
										OTHER		▼	

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Nordhoff			Nordhoff								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	3	0	1	3	0						
AM	7:00 AM	17	217	27	6	206	35	23	81	13	45	169	15	852					0
	7:15 AM	20	277	30	8	303	48	20	114	3	50	213	18	1,101					0
	7:30 AM	24	276	28	8	303	48	33	136	19	50	213	18	1,153					0
	7:45 AM	24	290	36	11	269	86	37	144	27	32	301	10	1,266					0
	8:00 AM	22	234	37	9	293	75	24	96	20	45	273	21	1,148					0
	8:15 AM	18	198	38	12	208	69	26	141	18	51	238	19	1,034					0
	8:30 AM	22	169	40	10	256	51	22	115	27	46	176	17	949					0
	8:45 AM	27	157	26	12	240	35	21	111	18	37	152	22	855					0
	9:00 AM	21	144	34	8	215	37	17	85	19	37	114	18	747					0
	9:15 AM	10	121	34	5	165	26	20	94	13	28	119	11	643					0
	9:30 AM	15	126	26	10	162	24	19	99	18	32	97	14	639					0
	9:45 AM	16	121	25	9	137	25	25	99	15	18	104	10	602					0
	VOLUMES	233	2,329	380	106	2,755	557	285	1,312	205	468	2,167	191	10,985	0	0	0	0	0
	APPROACH %	8%	79%	13%	3%	81%	16%	16%	73%	11%	17%	77%	7%						
	APP/DEPART	2,942	/	2,804	3,417	/	3,427	1,802	/	1,798	2,826	/	2,957	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	90	1,076	131	35	1,167	256	114	489	68	177	999	67	4,667					
	APPROACH %	7%	83%	10%	2%	80%	18%	17%	73%	10%	14%	80%	5%						
	PEAK HR FACTOR		0.927			0.967			0.808			0.906		0.922					
	APP/DEPART	1,297	/	1,257	1,458	/	1,411	671	/	655	1,242	/	1,344	0					
PM	03:00 PM	9	206	21	11	198	25	44	150	31	32	113	14	853					0
	3:15 PM	17	221	32	19	203	17	48	152	34	24	141	19	924					0
	3:30 PM	17	246	23	26	281	28	78	238	75	33	123	18	1,184					0
	3:45 PM	21	215	34	15	243	19	65	205	42	39	119	16	1,030					0
	4:00 PM	18	230	34	22	220	31	62	237	45	55	156	23	1,130					0
	4:15 PM	18	243	29	20	195	29	66	208	35	30	128	13	1,012					0
	4:30 PM	22	230	15	16	241	36	56	279	62	49	147	17	1,168					0
	4:45 PM	25	280	20	16	203	21	73	254	53	42	124	14	1,124					0
	5:00 PM	20	261	32	25	272	19	68	282	87	54	142	28	1,287					0
	5:15 PM	20	271	16	12	237	29	71	279	56	49	155	10	1,203					0
	5:30 PM	16	248	31	18	201	24	82	269	45	41	112	17	1,100					0
	5:45 PM	11	280	26	16	190	30	71	225	42	35	128	18	1,069					0
	VOLUMES	211	2,928	310	214	2,680	306	780	2,775	605	482	1,586	205	13,080	0	0	0	0	0
	APPROACH %	6%	85%	9%	7%	84%	10%	19%	67%	15%	21%	70%	9%						
	APP/DEPART	3,449	/	3,912	3,200	/	3,766	4,159	/	3,299	2,272	/	2,103	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	87	1,041	83	69	952	104	266	1,093	258	194	568	69	4,780					
	APPROACH %	7%	86%	7%	6%	85%	9%	16%	68%	16%	23%	68%	8%						
	PEAK HR FACTOR		0.932			0.891			0.928			0.928		0.929					
	APP/DEPART	1,210	/	1,375	1,125	/	1,403	1,617	/	1,245	830	/	758	0					

Mason

NORTH SIDE

Nordhoff WEST SIDE

EAST SIDE **Nordhoff**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

T219

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Thu, Aug 29, 19

LOCATION: Chatsworth
NORTH & SOUTH: Mason
EAST & WEST: Parthenia

PROJECT #: SC
LOCATION #: 7
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲
N
◄ W
E ►
S
▼

☑dd U-Turns to Left Turns

		NORTHBOUND Mason			SOUTHBOUND Mason			EASTBOUND Parthenia			WESTBOUND Parthenia				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0		0	0	0	0	
AM	7:00 AM	15	201	15	13	210	24	28	184	14	30	177	28	939	0	0	0	0	0
	7:15 AM	8	282	22	10	297	35	26	216	9	33	241	27	1,206	0	0	0	0	0
	7:30 AM	8	263	6	18	311	51	22	225	10	38	294	35	1,281	0	0	0	0	0
	7:45 AM	16	286	22	21	246	47	20	204	17	23	310	39	1,251	0	0	0	0	0
	8:00 AM	17	240	24	16	277	37	24	191	10	26	251	25	1,138	0	0	0	0	0
	8:15 AM	16	209	17	13	221	38	25	177	8	38	236	18	1,016	0	0	0	0	0
	8:30 AM	10	174	18	14	251	54	26	156	8	25	236	25	997	0	0	0	0	0
	8:45 AM	8	161	21	13	244	26	25	141	14	29	192	23	897	0	0	0	0	0
	9:00 AM	7	157	25	11	229	29	23	122	3	24	179	14	823	0	1	0	0	1
	9:15 AM	6	111	8	10	183	14	23	119	10	20	137	16	657	0	0	0	0	0
	9:30 AM	8	144	15	14	167	20	17	109	6	14	116	11	641	0	0	0	0	0
	9:45 AM	8	112	6	15	127	13	34	102	8	15	129	11	580	0	0	0	0	0
	VOLUMES	127	2,340	199	168	2,763	388	293	1,946	117	315	2,498	272	11,426	0	1	0	0	1
	APPROACH %	5%	88%	7%	5%	83%	12%	12%	83%	5%	10%	81%	9%						
	APP/DEPART	2,666	/	2,906	3,319	/	3,195	2,356	/	2,312	3,085	/	3,013	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	49	1,071	74	65	1,131	170	92	836	46	120	1,096	126	4,876					
	APPROACH %	4%	90%	6%	5%	83%	12%	9%	86%	5%	9%	82%	9%						
	PEAK HR FACTOR		0.921			0.899			0.947			0.902		0.952					
	APP/DEPART	1,194	/	1,289	1,366	/	1,297	974	/	975	1,342	/	1,315	0					
PM	03:00 PM	7	188	19	23	189	28	25	181	7	24	151	22	864	0	0	0	0	0
	3:15 PM	10	221	18	27	184	33	27	202	3	22	175	18	940	0	0	0	0	0
	3:30 PM	11	211	22	62	257	33	41	230	9	22	173	23	1,094	0	0	1	0	1
	3:45 PM	24	214	25	39	271	29	33	251	8	20	186	21	1,121	0	0	0	0	0
	4:00 PM	21	219	26	36	252	23	39	238	11	22	157	22	1,066	0	0	0	0	0
	4:15 PM	18	214	20	29	192	31	46	229	8	12	179	22	1,000	0	0	0	0	0
	4:30 PM	10	215	25	44	261	38	34	251	14	18	166	18	1,094	0	1	0	0	1
	4:45 PM	13	254	17	35	240	27	35	240	13	26	174	35	1,109	0	0	0	0	0
	5:00 PM	20	238	23	46	310	31	33	238	2	19	185	25	1,170	0	0	0	0	0
	5:15 PM	18	248	30	37	283	33	34	280	19	20	211	18	1,231	0	0	0	0	0
	5:30 PM	15	242	20	30	237	35	36	226	11	22	182	18	1,074	0	0	0	0	0
	5:45 PM	16	237	24	24	213	23	36	235	7	21	180	21	1,037	0	0	0	0	0
	VOLUMES	183	2,701	269	432	2,889	364	419	2,801	112	248	2,119	263	12,800	0	1	1	0	2
	APPROACH %	6%	86%	9%	12%	78%	10%	13%	84%	3%	9%	81%	10%						
	APP/DEPART	3,153	/	3,383	3,685	/	3,249	3,332	/	3,501	2,630	/	2,667	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	61	955	95	162	1,094	129	136	1,009	48	83	736	96	4,604					
	APPROACH %	5%	86%	9%	12%	79%	9%	11%	85%	4%	9%	80%	10%						
	PEAK HR FACTOR		0.938			0.895			0.896			0.919		0.935					
	APP/DEPART	1,111	/	1,188	1,385	/	1,225	1,193	/	1,265	915	/	926	0					

Mason

NORTH SIDE

Parthenia WEST SIDE

EAST SIDE **Parthenia**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	1	3	2	6	0	1	2	0	3	0	0	0	0	0	0	0	1	2	3
	7:15 AM	1	0	3	0	4	1	0	2	0	3	0	0	1	0	1	0	0	0	0	0
	7:30 AM	0	3	3	4	10	0	1	1	3	5	0	0	0	0	0	0	2	2	1	5
	7:45 AM	0	4	1	2	7	0	2	1	2	5	0	1	0	0	1	0	1	0	0	1
	8:00 AM	1	3	3	2	9	1	3	3	1	8	0	0	0	1	1	0	0	0	0	0
	8:15 AM	0	0	1	2	3	0	0	1	1	2	0	0	0	1	1	0	0	0	0	0
	8:30 AM	0	0	3	0	3	0	0	1	0	1	0	0	2	0	2	0	0	0	0	0
	8:45 AM	1	0	2	1	4	1	0	2	1	4	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	3	11	22	13	49	3	7	16	8	34	0	1	3	2	6	0	3	3	3	9
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	3	0	0	0	3	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0
	3:30 PM	1	0	0	2	3	1	0	0	1	2	0	0	0	0	0	0	0	0	1	1
	3:45 PM	0	1	1	1	3	0	0	0	1	1	0	1	0	0	1	0	0	1	0	1
	4:00 PM	1	0	0	1	2	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0
	4:15 PM	0	2	0	3	5	0	0	0	1	1	0	2	0	2	4	0	0	0	0	0
	4:30 PM	0	1	1	1	3	0	1	1	0	2	0	0	0	1	1	0	0	0	0	0
	4:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
	5:00 PM	1	0	1	2	4	1	0	0	1	2	0	0	1	1	2	0	0	0	0	0
	5:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
	5:30 PM	2	0	1	1	4	1	0	0	0	1	1	0	1	1	3	0	0	0	0	0
	5:45 PM	2	0	0	2	4	1	0	0	1	2	0	0	0	0	0	1	0	0	1	2
	TOTAL	10	5	4	14	33	4	2	1	5	12	5	3	2	7	17	1	0	1	2	4

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Parthenia

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	222	289	256	301
BIKES	5	9	4	5
BUSES	14	13	26	19

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	324	7:45:00 AM	380	7:30:00 AM	257	7:30:00 AM	372	7:45:00 AM
PM PK 15 MIN	296	5:15:00 PM	387	5:00:00 PM	333	5:15:00 PM	249	5:15:00 PM
AM PK HOUR	1194	7:15:00 AM	1366	7:15:00 AM	975	7:00:00 AM	1342	7:15:00 AM
PM PK HOUR	1138	4:45:00 PM	1385	4:30:00 PM	1193	4:30:00 PM	935	4:45:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	47	1032	65	1144
8-9	51	784	80	915
9-10	29	524	54	607
3-4	52	834	84	970
4-5	62	902	88	1052
5-6	69	965	97	1131
TOTAL	310	5041	468	5819

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	62	1064	157	1283
8-9	56	993	155	1204
9-10	50	706	76	832
3-4	151	901	123	1175
4-5	144	945	119	1208
5-6	137	1043	122	1302
TOTAL	600	5652	752	7004

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2427	4	3	1	0
2119	3	0	2	0
1439	0	0	0	0
2145	0	0	1	0
2260	1	0	0	0
2433	1	0	3	1
12823	9	3	7	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	96	829	50	975
8-9	100	665	40	805
9-10	97	452	27	576
3-4	126	864	27	1017
4-5	154	958	46	1158
5-6	139	979	39	1157
TOTAL	712	4747	229	5688

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	124	1022	129	1275
8-9	118	915	91	1124
9-10	73	561	52	686
3-4	88	685	84	857
4-5	78	676	97	851
5-6	82	758	82	922
TOTAL	563	4617	535	5715

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2250	5	3	6	3
1929	3	0	7	0
1262	0	0	3	0
1874	2	1	0	1
2009	1	0	1	0
2079	2	1	0	0
11403	13	5	17	4

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Mason

East/West: Parthenia

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	222	289	256	301
BIKES	0	0	0	0
BUSES	14	13	26	19

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	327	7:45:00 AM	392	7:30:00 AM	261	7:30:00 AM	383	7:45:00 AM
PM PK 15 MIN	300	5:15:00 PM	392	5:00:00 PM	340	5:15:00 PM	253	5:15:00 PM
AM PK HOUR	1216	7:15:00 AM	1399	7:15:00 AM	995	7:00:00 AM	1379	7:15:00 AM
PM PK HOUR	1156	4:45:00 PM	1406	4:30:00 PM	1220	4:30:00 PM	952	4:45:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	49	1052	69	1169
8-9	52	799	83	933
9-10	31	539	57	626
3-4	53	853	88	993
4-5	63	921	92	1075
5-6	70	980	99	1149
TOTAL	316	5143	486	5944

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	65	1091	161	1316
8-9	62	1018	160	1240
9-10	56	730	79	864
3-4	156	917	124	1196
4-5	150	958	121	1229
5-6	139	1057	123	1318
TOTAL	626	5770	766	7162

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2485	0	0	0	0
2173	0	0	0	0
1490	0	0	0	0
2189	0	0	0	0
2304	0	0	0	0
2467	0	0	0	0
13106	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	98	846	52	995
8-9	103	685	41	829
9-10	99	469	28	595
3-4	132	898	28	1057
4-5	157	986	47	1189
5-6	141	999	39	1179
TOTAL	729	4881	233	5842

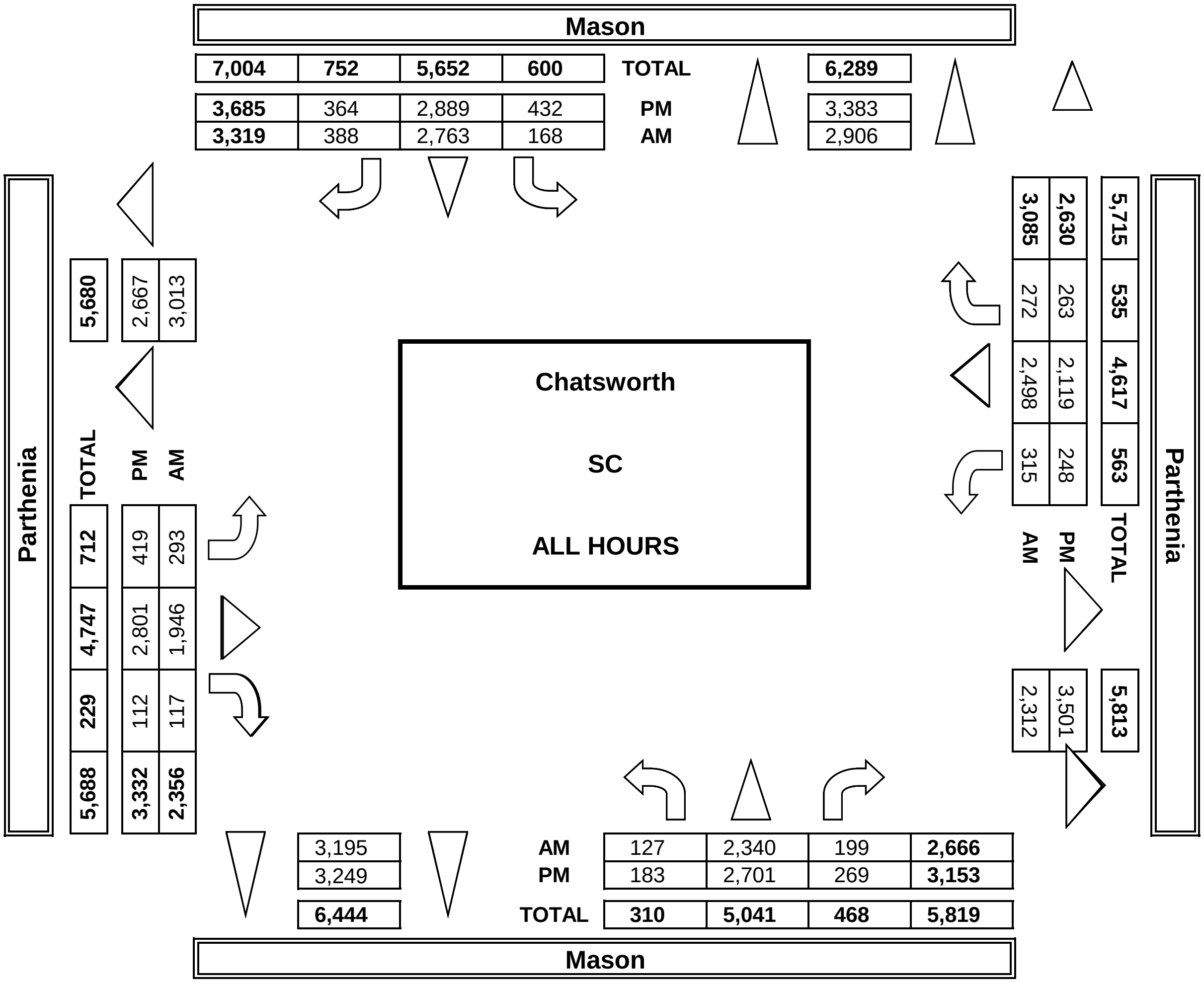
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	126	1052	132	1310
8-9	120	946	94	1160
9-10	75	586	57	718
3-4	90	709	88	886
4-5	80	696	101	877
5-6	84	769	83	935
TOTAL	574	4757	554	5885

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2305	0	0	0	0
1988	0	0	0	0
1313	0	0	0	0
1943	0	0	0	0
2066	0	0	0	0
2114	0	0	0	0
11727	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Mason

7,004	752	5,652	600	TOTAL
3,685	364	2,889	432	PM
3,319	388	2,763	168	AM

6,289
3,383
2,906

Parthenia

TOTAL	5,680	712	4,747	229	5,688
PM	2,667	419	2,801	112	3,332
AM	3,013	293	1,946	117	2,356

Chatsworth

SC

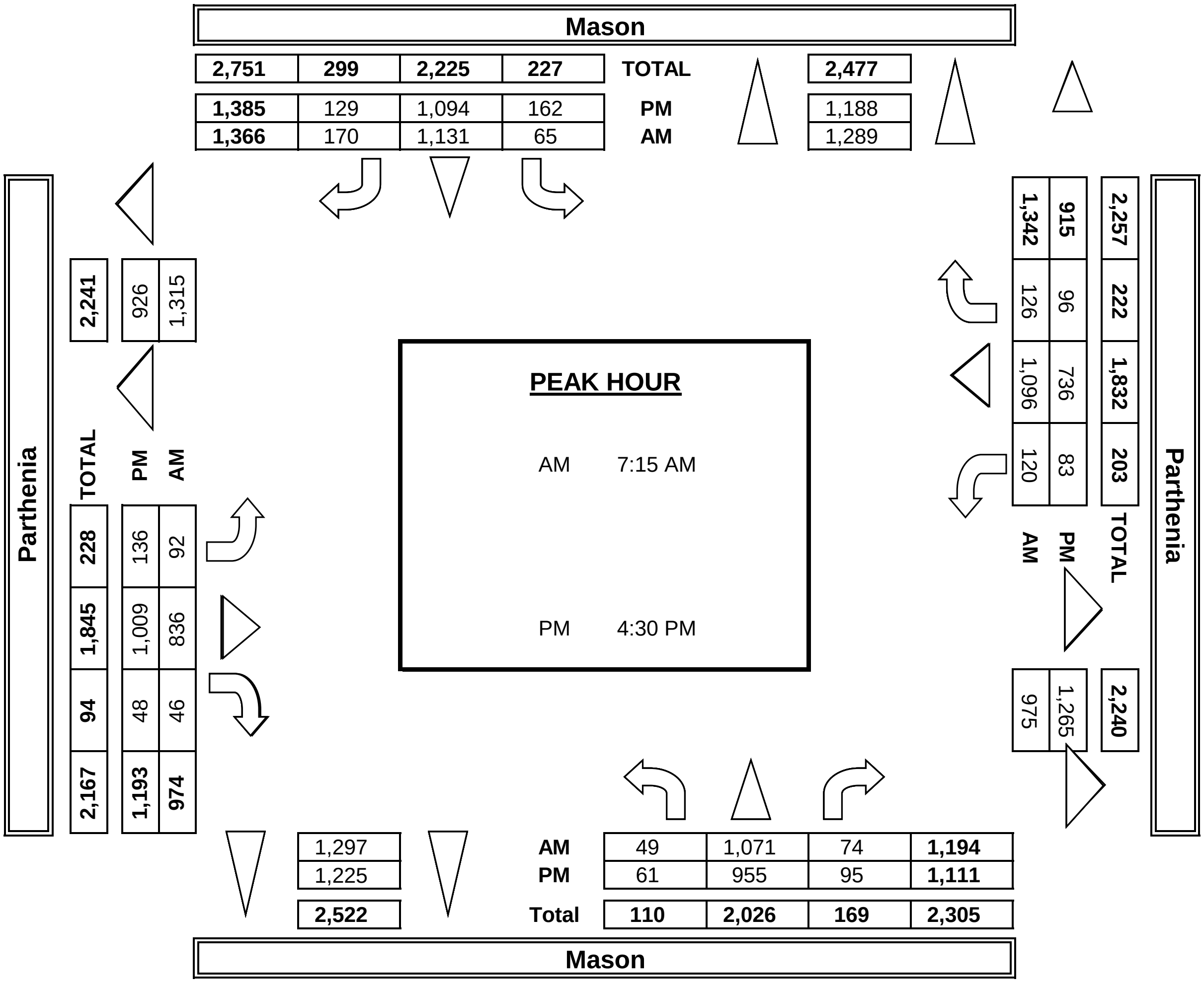
ALL HOURS

Parthenia

AM	3,085	272	2,498	315	2,312
PM	2,630	263	2,119	248	3,501
TOTAL	5,715	535	4,617	563	5,813

3,195	AM	127	2,340	199	2,666
3,249	PM	183	2,701	269	3,153
6,444	TOTAL	310	5,041	468	5,819

Mason



Mason

2,751	299	2,225	227	TOTAL
1,385	129	1,094	162	PM
1,366	170	1,131	65	AM

2,477
1,188
1,289

Parthenia

TOTAL	2,241	228	1,845	94	2,167
PM	926	136	1,009	48	1,193
AM	1,315	92	836	46	974

PEAK HOUR

AM 7:15 AM

PM 4:30 PM

Parthenia

AM	1,342	126	1,096	120	975
PM	915	96	736	83	1,265
TOTAL	2,257	222	1,832	203	2,240

1,297	AM	49	1,071	74	1,194
1,225	PM	61	955	95	1,111
2,522	Total	110	2,026	169	2,305

Mason

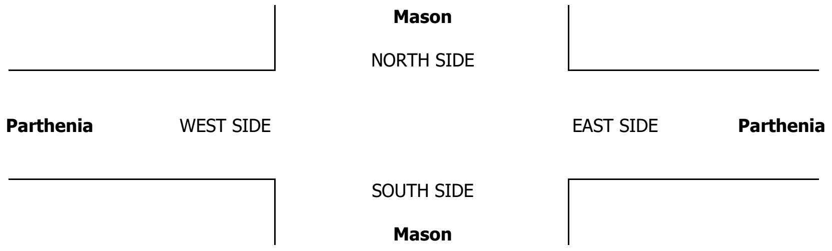
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
8/29/19	LOCATION:	Chatsworth	PROJECT #:	SC
THURSDAY	NORTH & SOUTH:	Mason	LOCATION #:	7
	EAST & WEST:	Parthenia	CONTROL:	SIGNAL

	NOTES:								AM		▲	
PCE Adjusted	Class	1	2	3	4	5	6		PM		N	
	Factor	1	1.5	2	3	2	2		MD	◄ W		E ►
									OTHER		S	
									OTHER		▼	

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Parthenia			Parthenia								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	2	0	1	2	0						
AM	7:00 AM	17	208	16	14	215	26	28	192	15	31	183	30	972					0
	7:15 AM	8	288	24	11	305	36	27	220	10	33	251	28	1,237					0
	7:30 AM	8	269	6	19	321	52	22	229	10	39	300	35	1,308					0
	7:45 AM	16	288	23	21	250	48	21	206	17	24	319	40	1,273					0
	8:00 AM	17	245	25	17	284	37	25	198	10	27	260	25	1,169					0
	8:15 AM	17	214	18	15	228	39	26	181	8	38	243	19	1,044					0
	8:30 AM	10	179	19	15	257	58	28	163	9	26	242	26	1,031					0
	8:45 AM	8	162	21	16	249	26	25	143	14	29	202	24	918					0
	9:00 AM	8	160	27	12	238	30	23	129	3	25	186	15	855					0
	9:15 AM	6	116	8	11	188	14	23	122	11	20	143	17	677					0
	9:30 AM	9	149	16	16	173	21	17	111	6	15	121	12	664					0
	9:45 AM	8	115	6	17	132	14	36	107	9	15	137	13	607					0
	VOLUMES	131	2,390	208	182	2,838	399	299	1,999	120	321	2,584	282	11,752	0	0	0	0	0
	APPROACH %	5%	88%	8%	5%	83%	12%	12%	83%	5%	10%	81%	9%						
	APP/DEPART	2,728	/	2,971	3,419	/	3,279	2,418	/	2,389	3,187	/	3,114	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	49	1,089	78	67	1,160	173	94	852	47	123	1,129	128	4,986					
	APPROACH %	4%	90%	6%	5%	83%	12%	9%	86%	5%	9%	82%	9%						
	PEAK HR FACTOR		0.929			0.893			0.952			0.900		0.953					
	APP/DEPART	1,216	/	1,311	1,399	/	1,329	993	/	997	1,379	/	1,351	0					
PM	03:00 PM	8	193	21	24	193	28	27	188	7	25	156	24	891					0
	3:15 PM	10	225	18	29	187	34	29	208	3	23	181	18	963					0
	3:30 PM	11	218	24	64	262	33	43	241	10	22	181	25	1,131					0
	3:45 PM	24	218	26	40	276	29	34	261	8	20	192	21	1,147					0
	4:00 PM	21	222	28	37	255	23	40	248	11	22	161	22	1,088					0
	4:15 PM	18	220	21	31	195	32	47	236	8	12	186	24	1,027					0
	4:30 PM	10	222	26	46	265	40	35	255	15	19	171	19	1,121					0
	4:45 PM	14	258	18	37	244	27	35	248	13	27	179	37	1,134					0
	5:00 PM	20	242	24	47	314	31	34	244	2	20	189	26	1,190					0
	5:15 PM	18	252	30	38	286	33	35	287	19	21	214	19	1,250					0
	5:30 PM	16	246	21	31	242	35	37	229	11	23	183	18	1,089					0
	5:45 PM	17	241	25	24	215	24	36	239	7	21	184	21	1,052					0
	VOLUMES	185	2,753	278	444	2,932	367	430	2,882	113	253	2,173	272	13,080	0	0	0	0	0
	APPROACH %	6%	86%	9%	12%	78%	10%	13%	84%	3%	9%	81%	10%						
	APP/DEPART	3,216	/	3,454	3,743	/	3,298	3,424	/	3,604	2,698	/	2,725	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	62	973	97	167	1,109	131	139	1,033	49	86	752	100	4,694					
	APPROACH %	5%	86%	9%	12%	79%	9%	11%	85%	4%	9%	80%	11%						
	PEAK HR FACTOR		0.943			0.898			0.897			0.928		0.939					
	APP/DEPART	1,131	/	1,211	1,406	/	1,243	1,220	/	1,297	937	/	944	0					



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T219

DATE: Thu, Aug 29, 19	LOCATION: Chatsworth NORTH & SOUTH: Mason EAST & WEST: Chase	PROJECT #: SC LOCATION #: 8 CONTROL: SIGNAL	

NOTES:

AM
PM
MD
OTHER
OTHER

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N
◄ W
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▼

☑dd U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
			Mason			Mason			Chase			Chase							
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0		0	0	0	0	
AM	7:00 AM	7	210	1	0	246	5	8	2	11	3	9	6	508	0	0	0	0	0
	7:15 AM	6	282	2	1	329	11	7	5	12	5	5	7	672	0	0	0	0	0
	7:30 AM	17	258	2	4	343	14	17	12	12	3	14	7	703	0	0	0	0	0
	7:45 AM	16	287	4	9	249	17	12	10	17	5	22	13	661	0	1	0	0	1
	8:00 AM	7	266	4	9	298	12	8	22	21	4	3	7	661	0	0	0	0	0
	8:15 AM	5	234	6	5	259	3	3	2	6	3	4	15	545	0	0	0	0	0
	8:30 AM	3	204	6	3	275	5	4	5	11	3	2	5	526	0	0	0	0	0
	8:45 AM	5	173	3	5	278	5	6	1	6	4	2	8	496	0	0	0	0	0
	9:00 AM	1	154	3	3	250	3	6	0	5	3	2	14	444	0	0	0	0	0
	9:15 AM	3	127	0	4	206	5	5	1	2	3	2	5	363	0	0	0	0	0
	9:30 AM	3	144	3	1	177	2	1	2	8	1	4	4	350	0	0	0	0	0
	9:45 AM	2	128	1	3	151	4	0	0	7	5	0	1	302	0	0	0	0	0
	VOLUMES	75	2,467	35	47	3,061	86	77	62	118	42	69	92	6,231	0	1	0	0	1
	APPROACH %	3%	96%	1%	1%	96%	3%	30%	24%	46%	21%	34%	45%						
	APP/DEPART	2,577	/	2,637	3,194	/	3,221	257	/	143	203	/	230	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	46	1,093	12	23	1,219	54	44	49	62	17	44	34	2,697					
	APPROACH %	4%	95%	1%	2%	94%	4%	28%	32%	40%	18%	46%	36%						
	PEAK HR FACTOR		0.937			0.898			0.760			0.594		0.959					
	APP/DEPART	1,151	/	1,172	1,296	/	1,298	155	/	83	95	/	144	0					
PM	03:00 PM	9	243	4	4	214	7	3	0	7	1	3	2	497	1	0	0	0	1
	3:15 PM	7	245	7	8	198	3	6	4	7	1	4	2	492	0	0	0	0	0
	3:30 PM	4	246	6	10	273	4	7	6	11	4	5	5	581	0	0	0	0	0
	3:45 PM	3	246	5	3	292	6	2	5	4	2	2	3	573	0	0	0	0	0
	4:00 PM	6	257	7	11	288	3	5	4	10	3	4	1	599	0	0	0	0	0
	4:15 PM	6	249	6	5	208	2	4	6	11	3	2	3	505	0	0	0	0	0
	4:30 PM	8	236	5	5	289	4	2	7	6	3	3	2	570	0	0	0	0	0
	4:45 PM	7	274	9	6	265	8	8	9	6	8	2	4	606	0	0	0	0	0
	5:00 PM	8	273	5	7	313	13	2	6	9	4	5	4	649	0	0	0	0	0
	5:15 PM	12	305	5	10	305	5	7	7	6	1	1	3	667	0	0	0	0	0
	5:30 PM	8	267	5	9	253	9	3	8	7	1	4	7	581	0	0	0	0	0
	5:45 PM	8	277	5	10	221	8	8	9	9	6	4	4	569	0	0	0	0	0
	VOLUMES	86	3,118	69	88	3,119	72	57	71	93	37	39	40	6,889	1	0	0	0	1
	APPROACH %	3%	95%	2%	3%	95%	2%	26%	32%	42%	32%	34%	34%						
	APP/DEPART	3,273	/	3,215	3,279	/	3,250	221	/	228	116	/	196	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	35	1,119	24	32	1,136	35	20	30	28	14	12	18	2,503					
	APPROACH %	3%	95%	2%	3%	94%	3%	26%	38%	36%	32%	27%	41%						
	PEAK HR FACTOR		0.915			0.903			0.848			0.786		0.938					
	APP/DEPART	1,178	/	1,157	1,203	/	1,178	78	/	86	44	/	82	0					

Mason

NORTH SIDE

Chase WEST SIDE

EAST SIDE **Chase**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	3	1	0	1	5	2	0	0	0	2	0	1	0	1	2	1	0	0	0	1
	7:45 AM	9	1	7	0	17	3	1	4	0	8	0	0	0	0	0	6	0	3	0	9
	8:00 AM	4	2	2	1	9	1	2	2	0	5	0	0	0	1	1	3	0	0	0	3
	8:15 AM	1	1	2	1	5	0	1	2	0	3	0	0	0	1	1	1	0	0	0	1
	8:30 AM	0	0	3	0	3	0	0	1	0	1	0	0	2	0	2	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	1	0	1	0	2	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
	TOTAL	18	5	16	5	44	7	4	11	2	24	0	1	2	3	6	11	0	3	0	14
PM	3:00 PM	0	0	2	1	3	0	0	2	0	2	0	0	0	0	0	0	0	0	1	1
	3:15 PM	0	3	1	1	5	0	0	0	0	0	0	2	1	0	3	0	1	0	1	2
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	2	1	1	1	5	1	0	0	0	1	1	0	1	0	2	0	1	0	1	2
	4:00 PM	0	2	0	1	3	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0
	4:15 PM	1	1	0	2	4	1	1	0	1	3	0	0	0	1	1	0	0	0	0	0
	4:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
	4:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
	5:00 PM	0	2	3	2	7	0	1	2	1	4	0	1	1	1	3	0	0	0	0	0
	5:15 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	1	1	2	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0
	5:45 PM	1	1	0	3	5	0	0	0	1	1	1	1	0	1	3	0	0	0	1	1
	TOTAL	4	11	9	14	38	2	5	5	3	15	2	4	4	7	17	0	2	0	4	6

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South: Mason

East/West: Chase

Day: Thursday, August 29, 2019 Weather: Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	217	228	16	15
BIKES	6	10	5	2
BUSES	14	12	8	4

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	307	7:45:00 AM	361	7:30:00 AM	51	8:00:00 AM	40	7:45:00 AM
PM PK 15 MIN	322	5:15:00 PM	333	5:00:00 PM	26	5:45:00 PM	14	5:45:00 PM
AM PK HOUR	1151	7:15:00 AM	1296	7:15:00 AM	155	7:15:00 AM	100	7:30:00 AM
PM PK HOUR	1178	5:00:00 PM	1230	4:30:00 PM	81	5:00:00 PM	44	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	46	1037	9	1092
8-9	20	877	19	916
9-10	9	553	7	569
3-4	23	980	22	1025
4-5	27	1016	27	1070
5-6	36	1122	20	1178
TOTAL	161	5585	104	5850

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	14	1167	47	1228
8-9	22	1110	25	1157
9-10	11	784	14	809
3-4	25	977	20	1022
4-5	27	1050	17	1094
5-6	36	1092	35	1163
TOTAL	135	6180	158	6473

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2320	1	0	5	7
2073	3	0	1	4
1378	0	0	1	0
2047	0	2	1	0
2164	3	0	1	0
2341	2	0	0	0
12323	9	2	9	11

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	44	29	52	125
8-9	21	30	44	95
9-10	12	3	22	37
3-4	18	15	29	62
4-5	19	26	33	78
5-6	20	30	31	81
TOTAL	134	133	211	478

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	16	50	33	99
8-9	14	11	35	60
9-10	12	8	24	44
3-4	8	14	12	34
4-5	17	11	10	38
5-6	12	14	18	44
TOTAL	79	108	132	319

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
224	2	0	4	3
155	0	0	5	0
81	0	0	2	0
96	0	3	2	0
116	1	0	0	0
125	2	1	3	0
797	5	4	16	3

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Mason

East/West: Chase

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	217	228	16	15
BIKES	0	0	0	0
BUSES	14	12	8	4

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	312	7:45:00 AM	371	7:30:00 AM	55	8:00:00 AM	41	7:45:00 AM
PM PK 15 MIN	326	5:15:00 PM	336	5:00:00 PM	26	5:45:00 PM	15	5:45:00 PM
AM PK HOUR	1174	7:15:00 AM	1324	7:15:00 AM	160	7:15:00 AM	104	7:30:00 AM
PM PK HOUR	1195	4:45:00 PM	1244	4:30:00 PM	82	5:00:00 PM	47	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	46	1059	10	1115
8-9	21	893	20	934
9-10	9	570	8	587
3-4	23	1004	23	1050
4-5	27	1039	28	1094
5-6	36	1138	20	1194
TOTAL	162	5703	108	5973

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	15	1192	48	1255
8-9	22	1135	27	1183
9-10	13	811	14	837
3-4	25	996	20	1041
4-5	28	1066	17	1110
5-6	37	1102	35	1174
TOTAL	139	6300	161	6599

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2369	0	0	0	0
2117	0	0	0	0
1424	0	0	0	0
2091	0	0	0	0
2204	0	0	0	0
2368	0	0	0	0
12572	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	44	29	53	126
8-9	22	31	48	101
9-10	12	4	24	40
3-4	18	17	31	66
4-5	20	28	34	81
5-6	20	30	32	82
TOTAL	135	138	221	494

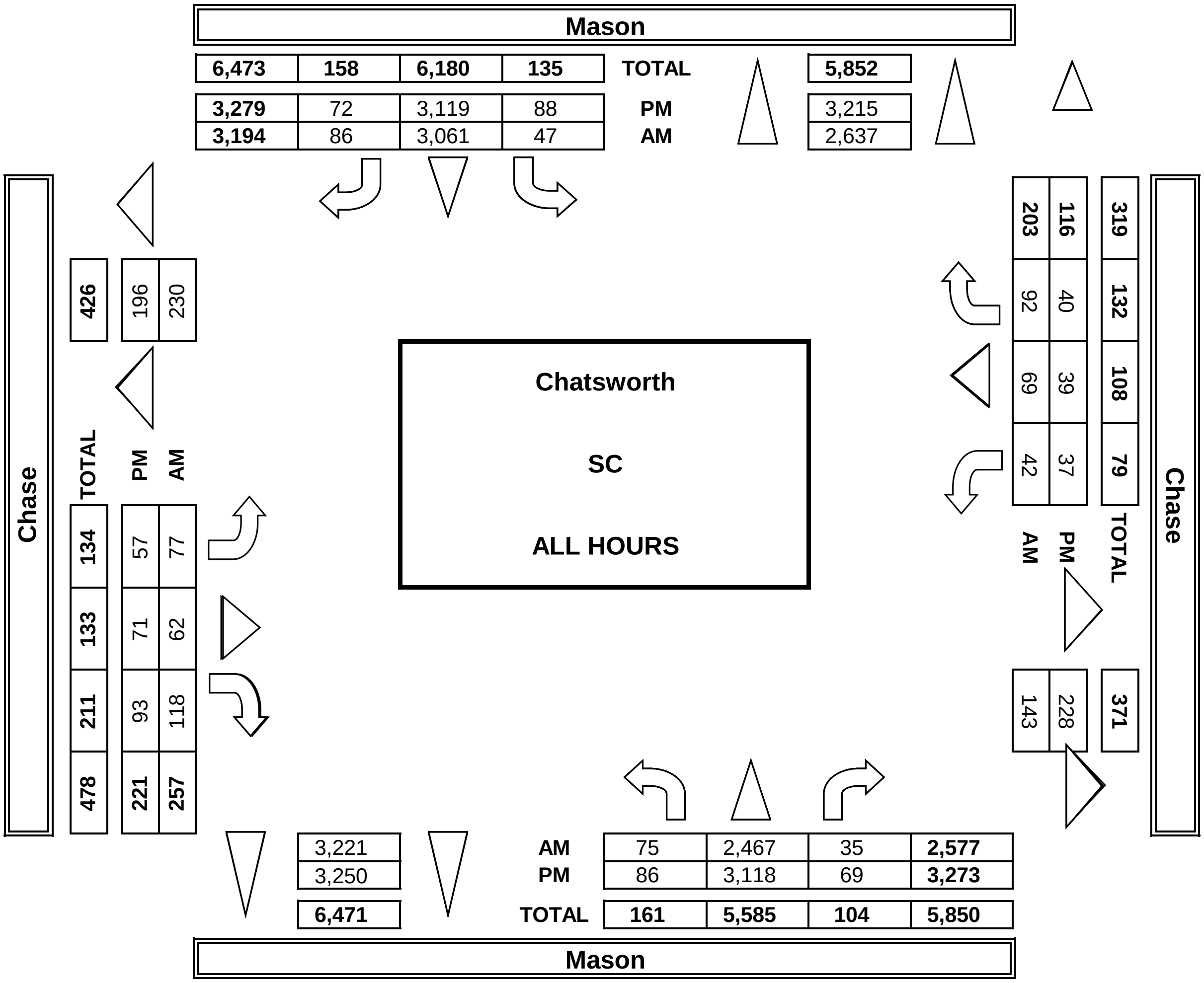
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	17	51	33	101
8-9	14	12	38	63
9-10	12	9	24	45
3-4	9	14	13	35
4-5	18	12	10	40
5-6	13	16	19	47
TOTAL	82	113	136	331

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
227	0	0	0	0
164	0	0	0	0
85	0	0	0	0
101	0	0	0	0
121	0	0	0	0
129	0	0	0	0
825	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Chatsworth

SC

ALL HOURS

Mason (north)

6,473	**158**	**6,180**	**135**	**TOTAL**	**5,852**
3,279	72	3,119	88	**PM**	3,215
3,194	86	3,061	47	**AM**	2,637

Chase (west)

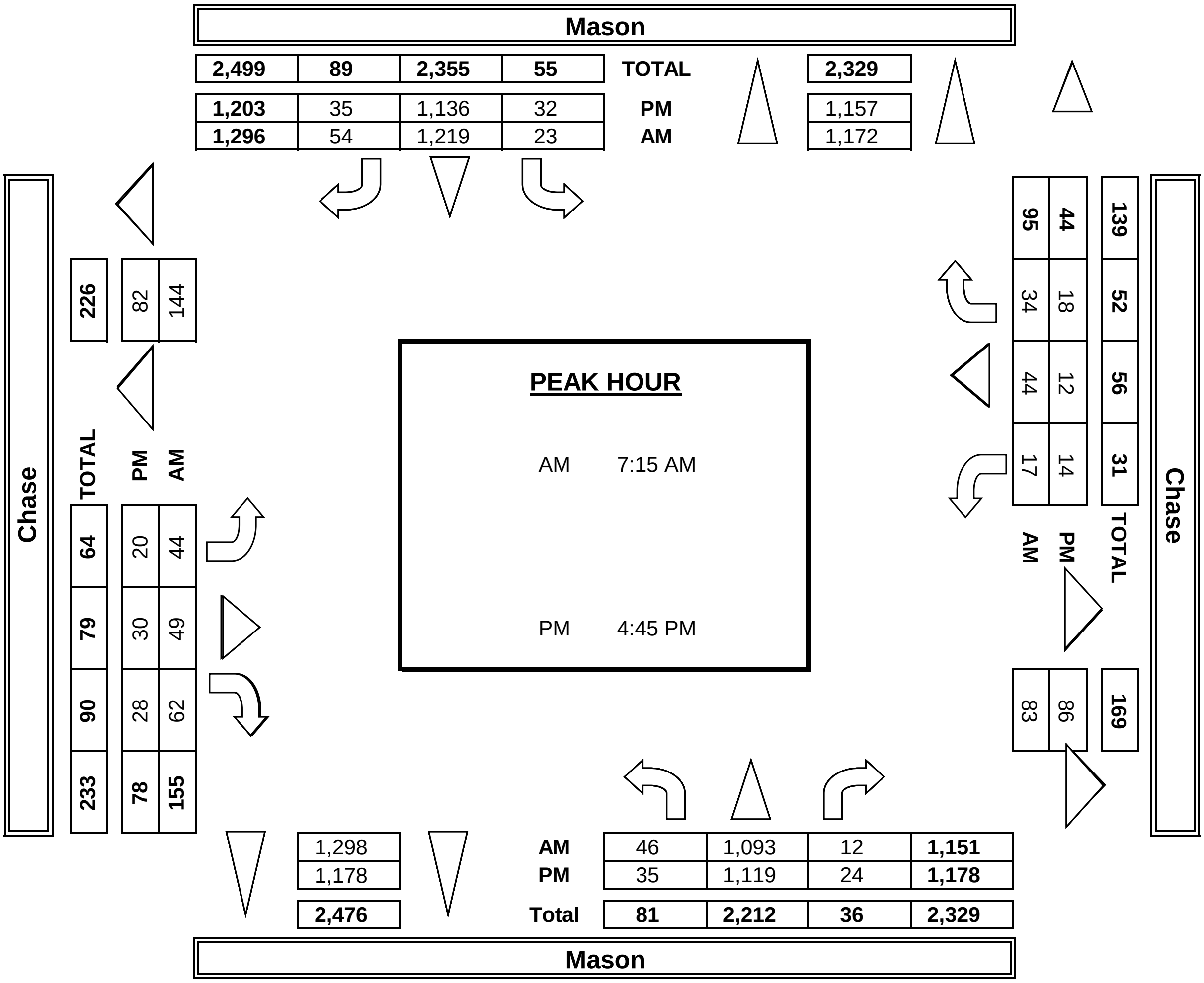
TOTAL	**426**	**134**	**133**	**211**	**478**
PM	196	57	71	93	**221**
AM	230	77	62	118	**257**

Chase (east)

AM	**203**	92	69	42	143
PM	**116**	40	39	37	228
TOTAL	**319**	**132**	**108**	**79**	**371**

Mason (south)

3,221	**AM**	75	2,467	35	**2,577**
3,250	**PM**	86	3,118	69	**3,273**
6,471	**TOTAL**	**161**	**5,585**	**104**	**5,850**



PEAK HOUR

AM 7:15 AM

PM 4:45 PM

Mason (north)

2,499	**89**	**2,355**	**55**	**TOTAL**	**2,329**
1,203	35	1,136	32	**PM**	1,157
1,296	54	1,219	23	**AM**	1,172

Chase (west)

TOTAL	**226**	**64**	**79**	**90**	**233**
PM	82	20	30	28	**78**
AM	144	44	49	62	**155**

Chase (east)

AM	**95**	34	44	17	83
PM	**44**	18	12	14	86
TOTAL	**139**	**52**	**56**	**31**	**169**

Mason (south)

1,298	**AM**	46	1,093	12	**1,151**
1,178	**PM**	35	1,119	24	**1,178**
2,476	**Total**	**81**	**2,212**	**36**	**2,329**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
8/29/19	LOCATION:	Chatsworth	PROJECT #:	SC
THURSDAY	NORTH & SOUTH:	Mason	LOCATION #:	8
	EAST & WEST:	Chase	CONTROL:	SIGNAL

	NOTES:									
PCE Adjusted	Class	1	2	3	4	5	6			AM
	Factor	1	1.5	2	3	2	2			PM
										MD
										OTHER
										OTHER

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		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Chase			Chase								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0						
AM	7:00 AM	7	216	1	0	252	6	8	2	11	3	9	6	521					0
	7:15 AM	6	288	2	1	335	11	7	5	13	6	5	7	686					0
	7:30 AM	17	264	3	4	353	14	17	12	12	3	14	7	720					0
	7:45 AM	16	292	4	10	253	17	12	10	17	5	23	13	671					0
	8:00 AM	8	271	4	9	306	13	8	23	24	4	4	8	680					0
	8:15 AM	5	239	6	5	265	3	3	2	6	3	4	17	558					0
	8:30 AM	3	208	6	3	282	6	4	5	12	3	2	5	538					0
	8:45 AM	5	176	4	5	283	5	7	1	7	4	2	9	506					0
	9:00 AM	1	157	3	4	259	3	6	0	7	3	2	14	458					0
	9:15 AM	3	132	0	4	213	5	5	1	3	3	2	5	375					0
	9:30 AM	3	151	4	1	182	2	1	3	8	1	5	4	364					0
	9:45 AM	2	132	1	4	157	4	0	0	7	5	0	1	313					0
	VOLUMES	76	2,522	37	49	3,137	89	78	64	125	43	72	95	6,384	0	0	0	0	0
	APPROACH %	3%	96%	1%	1%	96%	3%	29%	24%	47%	21%	34%	45%						
	APP/DEPART	2,635	/	2,694	3,275	/	3,305	266	/	149	209	/	236	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	47	1,114	13	24	1,246	55	44	50	66	18	46	35	2,755					
	APPROACH %	4%	95%	1%	2%	94%	4%	28%	31%	41%	18%	46%	35%						
	PEAK HR FACTOR		0.942			0.892			0.732			0.598		0.957					
	APP/DEPART	1,174	/	1,193	1,324	/	1,330	160	/	86	98	/	147	0					
PM	03:00 PM	9	248	4	4	219	7	3	0	8	1	3	2	507					0
	3:15 PM	7	250	8	8	201	3	6	5	7	1	4	2	501					0
	3:30 PM	4	255	6	10	278	4	7	6	12	4	5	6	597					0
	3:45 PM	3	252	5	3	298	6	2	7	4	3	2	3	587					0
	4:00 PM	6	261	8	11	292	3	6	5	11	3	5	1	610					0
	4:15 PM	6	255	6	5	211	2	4	7	12	3	3	3	516					0
	4:30 PM	8	245	6	5	293	4	2	7	6	4	3	2	584					0
	4:45 PM	7	278	9	7	270	8	8	9	6	8	2	4	616					0
	5:00 PM	8	276	5	7	316	13	2	6	9	5	5	4	656					0
	5:15 PM	12	309	5	10	307	5	7	7	7	1	1	3	673					0
	5:30 PM	8	273	5	10	257	9	3	8	7	1	5	8	593					0
	5:45 PM	8	281	5	11	223	8	8	9	9	6	5	4	575					0
	VOLUMES	86	3,181	71	90	3,163	72	58	75	96	39	42	42	7,012	0	0	0	0	0
	APPROACH %	3%	95%	2%	3%	95%	2%	25%	33%	42%	32%	34%	34%						
	APP/DEPART	3,338	/	3,280	3,325	/	3,298	228	/	235	122	/	200	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	35	1,136	24	33	1,150	35	20	30	29	15	13	19	2,537					
	APPROACH %	3%	95%	2%	3%	94%	3%	25%	38%	36%	31%	28%	41%						
	PEAK HR FACTOR		0.916			0.906			0.853			0.830		0.942					
	APP/DEPART	1,195	/	1,175	1,218	/	1,193	79	/	87	47	/	83	0					

Mason

NORTH SIDE

Chase WEST SIDE

EAST SIDE **Chase**

SOUTH SIDE

Mason

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T219

DATE: Thu, Aug 29, 19	LOCATION:	Chatsworth		PROJECT #:	SC
	NORTH & SOUTH:	Mason		LOCATION #:	9
	EAST & WEST:	Roscoe		CONTROL:	SIGNAL

NOTES:

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☑ Add U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
			Mason			Mason			Roscoe			Roscoe							
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	3	0	1	3	0		0	0	0	0	
AM	7:00 AM	14	159	15	8	213	36	34	178	20	26	197	24	924	0	0	0	0	0
	7:15 AM	12	229	12	10	264	40	44	264	24	39	215	23	1,176	0	0	0	0	0
	7:30 AM	21	212	21	12	321	37	31	274	35	40	265	30	1,299	0	0	0	0	0
	7:45 AM	19	239	19	20	230	37	49	228	15	32	250	16	1,154	0	0	0	0	0
	8:00 AM	18	205	18	19	201	51	39	251	18	40	272	34	1,166	0	0	0	0	0
	8:15 AM	21	172	12	7	228	47	50	218	27	38	259	23	1,102	0	0	0	0	0
	8:30 AM	19	162	16	16	215	41	33	217	28	24	210	14	995	0	0	0	0	0
	8:45 AM	14	129	14	18	230	41	37	203	17	26	186	22	937	0	0	0	0	0
	9:00 AM	8	110	19	7	160	23	24	162	21	19	136	16	705	0	0	0	0	0
	9:15 AM	19	84	25	5	125	30	28	179	15	12	150	15	687	0	0	0	0	0
	9:30 AM	13	118	8	13	215	26	33	160	18	26	185	10	825	0	0	0	0	0
	9:45 AM	15	98	12	12	186	20	20	158	19	20	152	12	724	0	0	0	0	0
	VOLUMES	193	1,917	191	147	2,588	429	422	2,492	257	342	2,477	239	11,694	0	0	0	0	0
	APPROACH %	8%	83%	8%	5%	82%	14%	13%	79%	8%	11%	81%	8%						
	APP/DEPART	2,301	/	2,578	3,164	/	3,187	3,171	/	2,830	3,058	/	3,099	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	70	885	70	61	1,016	165	163	1,017	92	151	1,002	103	4,795					
	APPROACH %	7%	86%	7%	5%	82%	13%	13%	80%	7%	12%	80%	8%						
	PEAK HR FACTOR		0.925			0.839			0.935			0.908		0.923					
	APP/DEPART	1,025	/	1,151	1,242	/	1,259	1,272	/	1,148	1,256	/	1,237	0					
PM	03:00 PM	20	200	18	17	171	30	33	248	19	17	200	27	1,000	0	0	0	0	0
	3:15 PM	15	195	18	10	172	29	46	268	21	18	183	19	994	1	0	0	0	1
	3:30 PM	17	193	20	23	193	37	39	282	28	18	199	20	1,069	0	0	0	0	0
	3:45 PM	16	202	29	27	254	34	35	286	25	14	177	22	1,121	0	0	0	0	0
	4:00 PM	18	207	27	25	215	33	46	268	18	21	187	15	1,080	0	0	0	0	0
	4:15 PM	19	206	34	25	164	27	36	301	19	16	213	21	1,081	0	0	0	0	0
	4:30 PM	12	185	29	31	199	45	38	305	24	20	203	27	1,118	0	0	0	0	0
	4:45 PM	26	232	23	24	210	39	50	314	29	19	178	13	1,157	0	0	0	0	0
	5:00 PM	20	207	42	30	237	43	53	329	31	23	226	28	1,269	0	0	0	0	0
	5:15 PM	22	257	39	20	255	41	38	331	28	20	216	30	1,297	0	0	0	0	0
	5:30 PM	25	207	21	22	197	35	46	315	26	21	220	23	1,158	1	0	0	0	1
	5:45 PM	17	221	24	20	185	26	47	265	20	15	188	27	1,055	0	0	0	0	0
	VOLUMES	227	2,512	324	274	2,452	419	507	3,512	288	222	2,390	272	13,399	2	0	0	0	2
	APPROACH %	7%	82%	11%	9%	78%	13%	12%	82%	7%	8%	83%	9%						
	APP/DEPART	3,063	/	3,291	3,145	/	2,964	4,307	/	4,110	2,884	/	3,034	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	93	903	125	96	899	158	187	1,289	114	83	840	94	4,881					
	APPROACH %	8%	81%	11%	8%	78%	14%	12%	81%	7%	8%	83%	9%						
	PEAK HR FACTOR		0.881			0.912			0.962			0.918		0.941					
	APP/DEPART	1,121	/	1,184	1,153	/	1,097	1,590	/	1,510	1,017	/	1,090	0					

Mason

NORTH SIDE

Roscoe WEST SIDE

EAST SIDE **Roscoe**

SOUTH SIDE

Mason

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	3	1	2	7	1	3	1	2	7	0	0	0	0	0	0	0	0	0	0
	7:15 AM	2	1	1	0	4	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0
	7:30 AM	5	1	0	3	9	3	1	0	3	7	2	0	0	0	2	0	0	0	0	0
	7:45 AM	1	1	1	1	4	0	1	1	1	3	1	0	0	0	1	0	0	0	0	0
	8:00 AM	4	1	0	3	8	4	1	0	1	6	0	0	0	2	2	0	0	0	0	0
	8:15 AM	2	2	3	1	8	1	2	3	1	7	1	0	0	0	1	0	0	0	0	0
	8:30 AM	1	2	1	2	6	0	1	0	2	3	1	1	1	0	3	0	0	0	0	0
	8:45 AM	4	0	0	1	5	2	0	0	1	3	0	0	0	0	0	2	0	0	0	2
	9:00 AM	0	2	0	2	4	0	2	0	2	4	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	4	2	2	8	0	1	1	1	3	0	2	1	0	3	0	1	0	1	2
	9:30 AM	1	0	0	2	3	0	0	0	2	2	1	0	0	0	1	0	0	0	0	0
	9:45 AM	1	2	0	1	4	0	2	0	1	3	1	0	0	0	1	0	0	0	0	0
	TOTAL	22	19	9	20	70	11	14	7	17	49	9	4	2	2	17	2	1	0	1	4
PM	3:00 PM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
	3:15 PM	5	0	0	1	6	5	0	0	1	6	0	0	0	0	0	0	0	0	0	0
	3:30 PM	1	1	0	1	3	0	1	0	1	2	1	0	0	0	1	0	0	0	0	0
	3:45 PM	6	3	4	2	15	4	0	2	2	8	0	1	0	0	1	2	2	2	0	6
	4:00 PM	3	1	0	4	8	2	1	0	3	6	1	0	0	1	2	0	0	0	0	0
	4:15 PM	1	0	0	2	3	0	0	0	1	1	1	0	0	1	2	0	0	0	0	0
	4:30 PM	0	1	0	2	3	0	0	0	1	1	0	1	0	1	2	0	0	0	0	0
	4:45 PM	1	2	0	0	3	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0
	5:00 PM	6	0	0	1	7	4	0	0	0	4	2	0	0	1	3	0	0	0	0	0
	5:15 PM	5	0	0	3	8	4	0	0	3	7	1	0	0	0	1	0	0	0	0	0
	5:30 PM	4	1	3	4	12	2	1	2	2	7	2	0	1	2	5	0	0	0	0	0
	5:45 PM	4	1	0	3	8	2	1	0	2	5	2	0	0	0	2	0	0	0	1	1
	TOTAL	36	10	7	25	78	23	6	4	18	51	11	2	1	6	20	2	2	2	1	7

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Mason

East/West Roscoe

Day: Thursday, August 29, 2019 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	213	240	355	259
BIKES	3	8	6	20
BUSES	15	16	82	61

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	277	7:45:00 AM	370	7:30:00 AM	340	7:30:00 AM	346	8:00:00 AM
PM PK 15 MIN	318	5:15:00 PM	316	5:15:00 PM	413	5:00:00 PM	277	5:00:00 PM
AM PK HOUR	1025	7:15:00 AM	1242	7:15:00 AM	1272	7:15:00 AM	1299	7:30:00 AM
PM PK HOUR	1121	4:45:00 PM	1174	4:30:00 PM	1590	4:45:00 PM	1037	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	66	839	67	972
8-9	72	668	60	800
9-10	55	410	64	529
3-4	68	790	85	943
4-5	75	830	113	1018
5-6	84	892	126	1102
TOTAL	420	4429	515	5364

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	50	1028	150	1228
8-9	60	874	180	1114
9-10	37	686	99	822
3-4	77	790	130	997
4-5	105	788	144	1037
5-6	92	874	145	1111
TOTAL	421	5040	848	6309

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2200	5	0	4	0
1914	4	0	7	2
1351	5	1	0	0
1940	1	2	9	2
2055	3	0	2	0
2213	2	0	12	0
11673	20	3	34	4

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	158	944	94	1196
8-9	159	889	90	1138
9-10	105	659	73	837
3-4	153	1084	93	1330
4-5	170	1188	90	1448
5-6	184	1240	105	1529
TOTAL	929	6004	545	7478

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	137	927	93	1157
8-9	128	927	93	1148
9-10	77	623	53	753
3-4	67	759	88	914
4-5	76	781	76	933
5-6	79	850	108	1037
TOTAL	564	4867	511	5942

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2353	6	0	3	0
2286	5	0	3	0
1590	6	1	1	0
2244	6	0	2	2
2381	5	0	0	0
2566	7	1	2	0
13420	35	2	11	2

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South: Mason

East/West: Roscoe

Day: Thursday, August 29, 2019

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	213	240	355	259
BIKES	0	0	0	0
BUSES	15	16	82	61

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	283	7:45:00 AM	375	7:30:00 AM	360	7:30:00 AM	360	8:00:00 AM
PM PK 15 MIN	325	5:15:00 PM	322	5:15:00 PM	426	5:00:00 PM	283	5:00:00 PM
AM PK HOUR	1047	7:15:00 AM	1271	7:15:00 AM	1323	7:15:00 AM	1340	7:30:00 AM
PM PK HOUR	1140	4:45:00 PM	1191	4:30:00 PM	1632	4:45:00 PM	1063	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	74	851	71	995
8-9	81	677	65	822
9-10	57	419	67	542
3-4	70	809	87	966
4-5	77	852	114	1043
5-6	85	906	129	1120
TOTAL	443	4512	532	5486

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	54	1043	159	1256
8-9	67	890	193	1149
9-10	42	697	105	843
3-4	80	805	131	1016
4-5	109	801	148	1057
5-6	94	885	148	1126
TOTAL	445	5118	883	6445

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2251	0	0	0	0
1971	0	0	0	0
1385	0	0	0	0
1981	0	0	0	0
2099	0	0	0	0
2245	0	0	0	0
11931	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	169	977	102	1248
8-9	167	919	96	1181
9-10	109	682	75	866
3-4	159	1130	94	1382
4-5	176	1226	93	1494
5-6	188	1271	108	1567
TOTAL	966	6204	568	7738

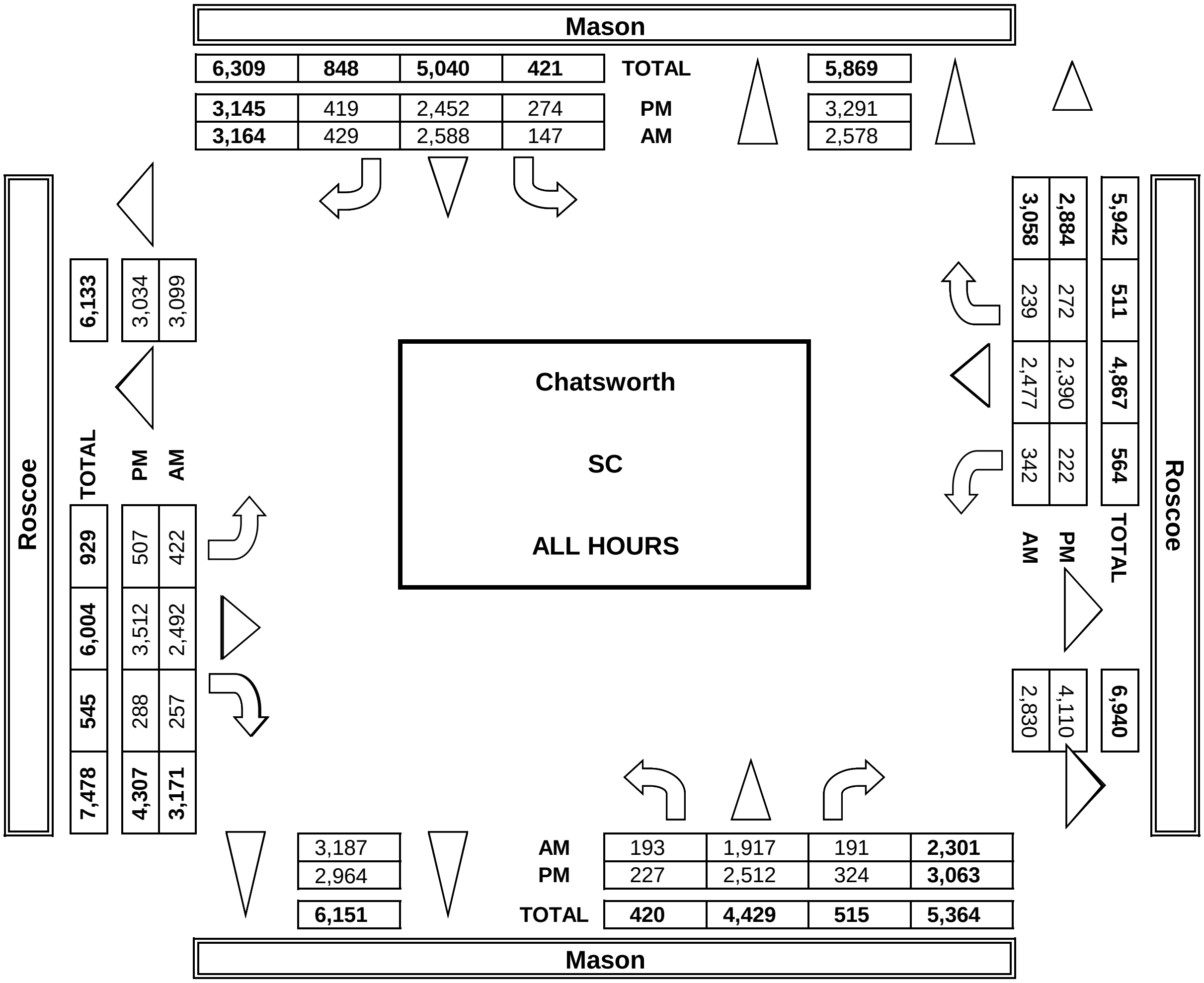
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	148	952	96	1195
8-9	131	959	103	1192
9-10	81	647	56	783
3-4	71	782	91	943
4-5	80	801	78	958
5-6	81	873	110	1063
TOTAL	589	5012	532	6133

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2443	0	0	0	0
2373	0	0	0	0
1649	0	0	0	0
2325	0	0	0	0
2452	0	0	0	0
2630	0	0	0	0
13870	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Mason (north leg)

6,309	848	5,040	421	TOTAL	5,869
3,145	419	2,452	274	PM	3,291
3,164	429	2,588	147	AM	2,578

Roscoe (west leg)

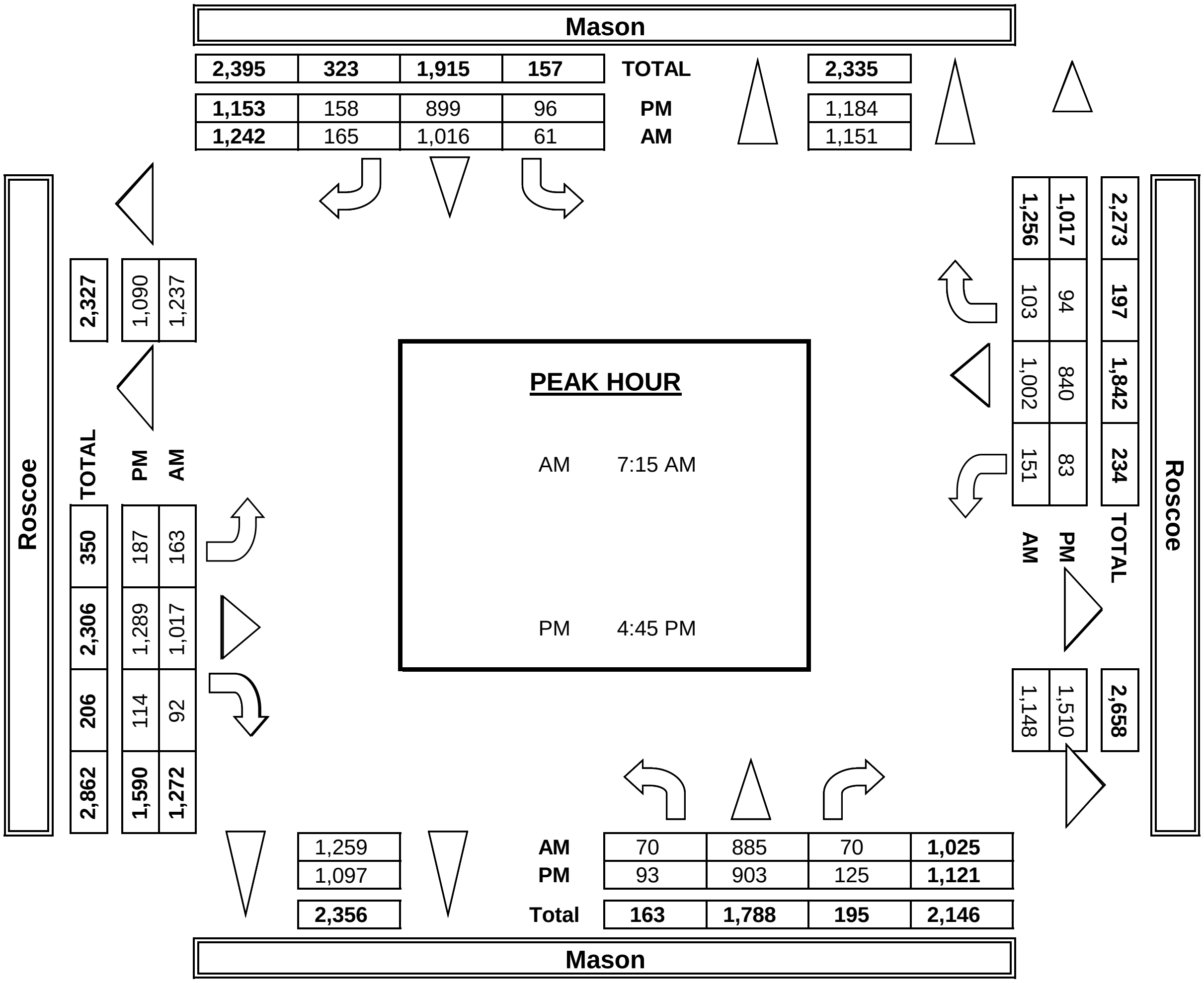
TOTAL	PM	AM
6,133	3,034	3,099
929	507	422
6,004	3,512	2,492
545	288	257
7,478	4,307	3,171

Roscoe (east leg)

AM	PM	TOTAL
3,058	2,884	5,942
239	272	511
2,477	2,390	4,867
342	222	564
2,830	4,110	6,940

Mason (south leg)

3,187	AM	193	1,917	191	2,301
2,964	PM	227	2,512	324	3,063
6,151	TOTAL	420	4,429	515	5,364



Mason (north leg)

2,395	323	1,915	157	TOTAL	2,335
1,153	158	899	96	PM	1,184
1,242	165	1,016	61	AM	1,151

Roscoe (west leg)

TOTAL	PM	AM
2,327	1,090	1,237
350	187	163
2,306	1,289	1,017
206	114	92
2,862	1,590	1,272

Roscoe (east leg)

AM	PM	TOTAL
1,256	1,017	2,273
103	94	197
1,002	840	1,842
151	83	234
1,148	1,510	2,658

Mason (south leg)

1,259	AM	70	885	70	1,025
1,097	PM	93	903	125	1,121
2,356	Total	163	1,788	195	2,146

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
8/29/19
THURSDAY

LOCATION: Chatsworth
NORTH & SOUTH: Mason
EAST & WEST: Roscoe

PROJECT #: SC
LOCATION #: 9
CONTROL: SIGNAL

	NOTES:						
PCE Adjusted	Class	1	2	3	4	5	6
	Factor	1	1.5	2	3	2	2

AM
PM
MD
OTHER
OTHER

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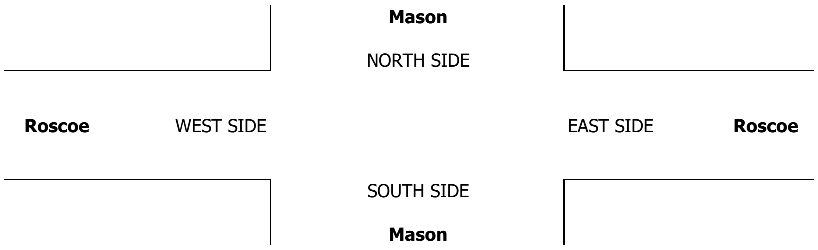
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Mason			Mason			Roscoe			Roscoe								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	1	2	0	1	3	0	1	3	0						
AM	7:00 AM	17	162	17	9	218	39	37	187	22	28	203	25	963					0
	7:15 AM	13	233	12	11	268	43	46	271	25	43	226	24	1,214					0
	7:30 AM	24	214	22	13	323	39	35	287	39	45	267	32	1,336					0
	7:45 AM	20	243	21	21	234	39	52	233	17	33	256	16	1,182					0
	8:00 AM	21	208	20	22	206	54	42	259	20	42	282	36	1,209					0
	8:15 AM	23	173	14	7	231	52	53	224	28	39	268	26	1,135					0
	8:30 AM	23	165	16	18	219	44	34	224	31	24	219	16	1,030					0
	8:45 AM	15	131	16	21	234	43	39	213	18	26	191	25	970					0
	9:00 AM	8	112	20	8	162	25	25	170	22	20	141	18	728					0
	9:15 AM	20	87	27	6	128	31	29	185	16	12	156	15	711					0
	9:30 AM	13	120	8	14	219	28	34	166	19	28	193	11	851					0
	9:45 AM	16	100	13	15	189	21	22	161	20	21	158	13	745					0
	VOLUMES	211	1,946	202	163	2,629	457	444	2,578	273	359	2,557	254	12,070	0	0	0	0	0
	APPROACH %	9%	83%	9%	5%	81%	14%	13%	78%	8%	11%	81%	8%						
	APP/DEPART	2,358	/	2,644	3,248	/	3,260	3,295	/	2,942	3,170	/	3,224	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	77	897	74	67	1,031	174	174	1,049	100	162	1,031	108	4,940					
	APPROACH %	7%	86%	7%	5%	81%	14%	13%	79%	8%	12%	79%	8%						
	PEAK HR FACTOR		0.925			0.847			0.920			0.904		0.924					
	APP/DEPART	1,047	/	1,178	1,271	/	1,292	1,323	/	1,189	1,300	/	1,282	0					
PM	03:00 PM	21	204	18	17	176	30	34	260	20	18	205	28	1,029					0
	3:15 PM	16	199	19	10	175	30	48	278	22	18	190	20	1,023					0
	3:30 PM	17	200	20	24	197	37	40	296	28	19	202	21	1,099					0
	3:45 PM	16	207	30	30	258	35	37	296	25	16	185	23	1,156					0
	4:00 PM	18	214	28	26	220	34	47	281	18	23	194	15	1,115					0
	4:15 PM	20	211	34	27	165	28	38	308	20	18	220	22	1,107					0
	4:30 PM	13	192	29	32	202	47	41	316	26	21	208	28	1,152					0
	4:45 PM	27	236	24	25	214	39	51	322	30	19	179	14	1,177					0
	5:00 PM	21	210	44	30	239	44	54	340	32	24	231	29	1,295					0
	5:15 PM	23	262	40	20	259	41	39	340	28	20	224	31	1,325					0
	5:30 PM	25	210	21	23	200	36	48	323	28	21	226	23	1,183					0
	5:45 PM	17	224	25	21	187	27	48	270	21	16	192	28	1,072					0
	VOLUMES	232	2,566	330	282	2,490	426	522	3,626	295	231	2,455	278	13,731	0	0	0	0	0
	APPROACH %	7%	82%	11%	9%	78%	13%	12%	82%	7%	8%	83%	9%						
	APP/DEPART	3,128	/	3,366	3,198	/	3,015	4,443	/	4,238	2,963	/	3,113	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	95	917	128	98	912	160	191	1,323	118	84	860	96	4,979					
	APPROACH %	8%	80%	11%	8%	78%	14%	12%	81%	7%	8%	83%	9%						
	PEAK HR FACTOR		0.878			0.915			0.959			0.918		0.940					
	APP/DEPART	1,140	/	1,204	1,169	/	1,113	1,632	/	1,549	1,039	/	1,114	0					



INTERSECTION TURNING MOVEMENT COUNTS

T517

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 17, 17

LOCATION: Chatsworth
NORTH & SOUTH: Kelvin
EAST & WEST: Roscoe

PROJECT #: SC1496
LOCATION #: 8
CONTROL: STOP N/S

NOTES:

AM
PM
MD
OTHER
OTHER

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☐ Add U-Turns to Left Turns

		NORTHBOUND Kelvin			SOUTHBOUND Kelvin			EASTBOUND Roscoe			WESTBOUND Roscoe			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	0	0	0	1	0	0	3	0	0	3	0	
AM	7:00 AM	0	0	0	4	0	12	3	214	0	0	256	0	489
	7:15 AM	0	0	0	7	0	26	4	275	0	0	309	0	621
	7:30 AM	0	0	0	2	0	15	10	343	0	0	341	1	712
	7:45 AM	0	0	0	4	0	18	6	309	0	0	327	0	664
	8:00 AM	0	0	0	2	0	11	4	305	0	0	333	0	655
	8:15 AM	0	0	0	2	0	16	7	287	0	0	297	3	612
	8:30 AM	0	0	0	3	0	12	5	259	0	0	236	1	516
	8:45 AM	0	0	0	3	0	11	4	237	0	0	267	0	522
	9:00 AM	0	0	0	0	0	9	3	198	0	0	215	1	426
	9:15 AM	0	0	0	0	0	8	2	195	0	0	199	1	405
	9:30 AM	0	0	0	8	0	5	4	197	0	0	198	4	416
	9:45 AM	0	0	0	0	0	8	4	211	0	0	178	1	402
	VOLUMES	0	0	0	35	0	151	56	3,030	0	0	3,156	12	6,448
	APPROACH %	0%	0%	0%	19%	0%	81%	2%	98%	0%	0%	100%	0%	
	APP/DEPART	0	/	69	187	/	0	3,092	/	3,066	3,169	/	3,313	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	0	15	0	70	24	1,232	0	0	1,310	1	2,656
	APPROACH %	0%	0%	0%	18%	0%	82%	2%	98%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.644			0.890			0.958		0.931
	APP/DEPART	0	/	25	85	/	0	1,260	/	1,247	1,311	/	1,384	0
PM	03:00 PM	0	0	0	1	0	9	5	250	0	0	220	3	488
	3:15 PM	0	0	0	2	0	7	9	283	0	0	235	5	541
	3:30 PM	0	0	0	2	0	6	5	350	0	0	237	4	604
	3:45 PM	0	0	0	4	0	11	8	301	0	0	241	2	567
	4:00 PM	0	0	0	2	0	9	9	362	1	0	204	4	591
	4:15 PM	0	0	0	0	0	4	12	341	0	0	295	2	654
	4:30 PM	0	0	0	2	0	4	11	368	0	0	272	2	659
	4:45 PM	0	0	0	3	0	11	10	341	0	0	284	3	652
	5:00 PM	0	0	0	4	0	6	5	386	0	0	279	7	687
	5:15 PM	0	0	0	3	0	9	14	355	0	0	254	8	643
	5:30 PM	0	0	0	0	0	11	11	377	0	0	305	5	709
	5:45 PM	0	0	0	2	0	8	7	356	0	0	271	4	648
	VOLUMES	0	0	0	25	0	95	106	4,070	1	0	3,097	49	7,463
	APPROACH %	0%	0%	0%	21%	0%	79%	3%	97%	0%	0%	98%	2%	
	APP/DEPART	0	/	155	120	/	1	4,197	/	4,095	3,146	/	3,212	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	10	0	37	40	1,459	0	0	1,122	23	2,698
	APPROACH %	0%	0%	0%	21%	0%	79%	3%	97%	0%	0%	98%	2%	
	PEAK HR FACTOR		0.000			0.839			0.956			0.923		0.950
	APP/DEPART	0	/	63	47	/	0	1,506	/	1,469	1,145	/	1,166	0

U-TURNS				
NB	SB	EB	WB	TTL
X	X	X	X	
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	2	0	2
0	0	1	0	1
0	0	1	0	1
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	1	1
0	1	6	1	8

0	0	2	0	2
0	0	4	0	4
0	0	0	0	0
0	0	0	0	0
0	0	3	0	3
0	0	2	0	2
0	0	1	0	1
0	0	2	0	2
0	0	3	0	3
0	0	1	0	1
0	0	1	0	1
0	0	1	0	1
0	0	20	0	20

Kelvin

NORTH SIDE

Roscoe WEST SIDE

EAST SIDE **Roscoe**

SOUTH SIDE

Kelvin

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
	7:15 AM	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1
	7:30 AM	4	0	0	1	5	2	0	0	0	2	1	0	0	1	2	1	0	0	0	1
	7:45 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
	8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	8:15 AM	7	0	0	1	8	2	0	0	0	2	3	0	0	1	4	2	0	0	0	2
	8:30 AM	1	1	0	3	5	0	0	0	1	1	1	1	0	0	2	0	0	0	2	2
	8:45 AM	4	0	0	0	4	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1
	9:00 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
	9:45 AM	3	0	0	0	3	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0
	TOTAL	26	3	0	6	35	7	0	0	2	9	13	3	0	2	18	6	0	0	2	8
PM	3:00 PM	5	0	0	0	5	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2
	3:15 PM	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
	3:30 PM	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1
	3:45 PM	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1
	4:00 PM	4	0	0	2	6	0	0	0	1	1	4	0	0	0	4	0	0	0	1	1
	4:15 PM	3	0	0	0	3	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1
	4:30 PM	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1
	4:45 PM	0	1	0	1	2	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1
	5:00 PM	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
	5:15 PM	3	0	0	0	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
	5:30 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	5:45 PM	5	0	0	0	5	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2
	TOTAL	34	1	0	3	38	12	0	0	1	13	14	1	0	0	15	8	0	0	2	10

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth Kelvin

East/West Roscoe

Day: Tuesday, October 17, 2017 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	0	8	434	391
BIKES	0	2	4	27
BUSES	0	0	76	53

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	0		33	7:15:00 AM	354	7:30:00 AM	342	7:30:00 AM
PM PK 15 MIN	0		15	3:45:00 PM	394	5:00:00 PM	310	5:30:00 PM
AM PK HOUR	0		88	7:00:00 AM	1276	7:30:00 AM	1311	7:15:00 AM
PM PK HOUR	0		47	4:45:00 PM	1517	5:00:00 PM	1145	4:45:00 PM

NORTHBOUND Approach					SOUTHBOUND Approach					TOTAL	XING S/L		XING N/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	N-S	Ped	Sch	Ped	Sch
7-8	0	0	0	0	7-8	17	0	71	88	88	0	0	2	2
8-9	0	0	0	0	8-9	10	0	50	60	60	0	0	4	4
9-10	0	0	0	0	9-10	8	0	30	38	38	0	0	1	0
3-4	0	0	0	0	3-4	9	0	33	42	42	0	0	3	4
4-5	0	0	0	0	4-5	7	0	28	35	35	0	0	2	2
5-6	0	0	0	0	5-6	9	0	34	43	43	0	0	7	2
TOTAL	0	0	0	0	TOTAL	60	0	246	306	306	0	0	19	14

EASTBOUND Approach					WESTBOUND Approach					TOTAL	XING W/L		XING E/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	E-W	Ped	Sch	Ped	Sch
7-8	23	1141	0	1164	7-8	0	1233	1	1234	2398	1	0	0	0
8-9	20	1088	0	1108	8-9	0	1133	4	1137	2245	1	2	0	0
9-10	13	801	0	814	9-10	0	790	7	797	1611	0	0	0	0
3-4	27	1184	0	1211	3-4	0	933	14	947	2158	0	0	0	0
4-5	42	1412	1	1455	4-5	0	1055	11	1066	2521	1	2	0	0
5-6	37	1474	0	1511	5-6	0	1109	24	1133	2644	0	0	0	0
TOTAL	162	7100	1	7263	TOTAL	0	6253	61	6314	13577	3	4	0	0

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:

North / Sounth: Kelvin

East/West: Roscoe

Day: Tuesday, October 17, 2017

Weather: Sunny

Hours:

School Day: Yes

District

I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	0	8	434	391
BIKES	0	0	0	0
BUSES	0	0	76	53

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	0		33	7:15:00 AM	368	7:30:00 AM	360	7:30:00 AM
PM PK 15 MIN	0		16	3:45:00 PM	403	5:00:00 PM	317	5:30:00 PM
AM PK HOUR	0		89	7:00:00 AM	1327	7:30:00 AM	1380	7:15:00 AM
PM PK HOUR	0		48	4:45:00 PM	1555	5:00:00 PM	1181	4:15:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
3-4	0	0	0	0
4-5	0	0	0	0
5-6	0	0	0	0
TOTAL	0	0	0	0

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	18	0	72	89
8-9	10	0	51	61
9-10	9	0	30	39
3-4	9	0	34	43
4-5	7	0	28	35
5-6	9	0	35	44
TOTAL	62	0	249	310

Hours	TOTAL	XING S/L		XING N/L	
	N-S	Ped	Sch	Ped	Sch
7-8	89	0	0	0	0
8-9	61	0	0	0	0
9-10	39	0	0	0	0
3-4	43	0	0	0	0
4-5	35	0	0	0	0
5-6	44	0	0	0	0
TOTAL	310	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	23	1194	0	1217
8-9	20	1133	0	1153
9-10	15	841	0	855
3-4	27	1245	0	1272
4-5	43	1460	2	1505
5-6	38	1517	0	1555
TOTAL	165	7389	2	7556

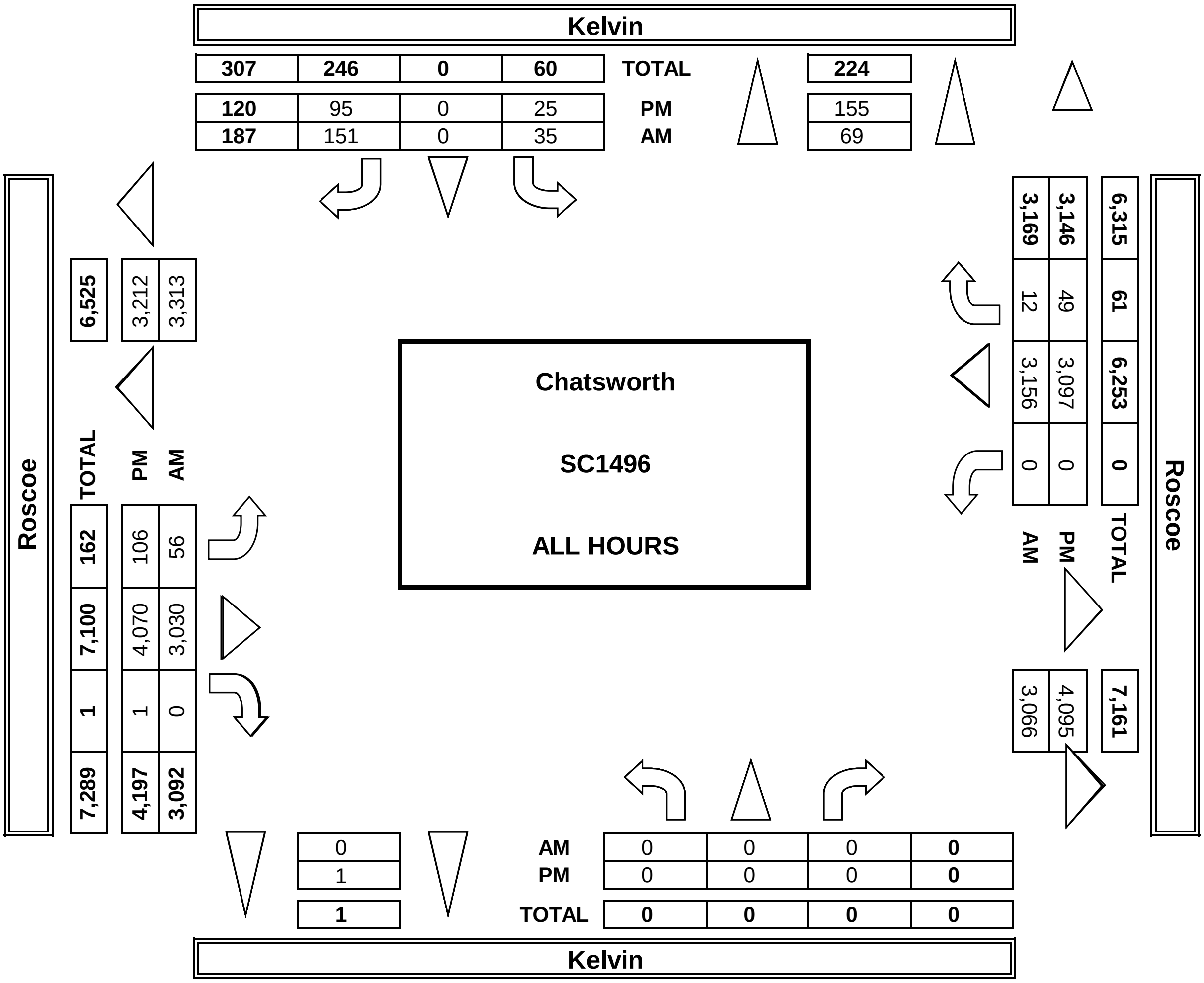
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	1296	1	1297
8-9	0	1185	4	1189
9-10	0	834	7	841
3-4	0	962	14	976
4-5	0	1089	11	1100
5-6	0	1138	24	1162
TOTAL	0	6502	61	6563

Hours	TOTAL	XING W/L		XING E/L	
	E-W	Ped	Sch	Ped	Sch
7-8	2514	0	0	0	0
8-9	2342	0	0	0	0
9-10	1696	0	0	0	0
3-4	2248	0	0	0	0
4-5	2604	0	0	0	0
5-6	2717	0	0	0	0
TOTAL	14119	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Chatsworth

SC1496

ALL HOURS

Kelvin

307	**246**	**0**	**60**	**TOTAL**	**224**
120	95	0	25	**PM**	155
187	151	0	35	**AM**	69

Roscoe (west)

TOTAL	**PM**	**AM**
6,525	3,212	3,313
162	106	56
7,100	4,070	3,030
1	1	0
7,289	**4,197**	**3,092**

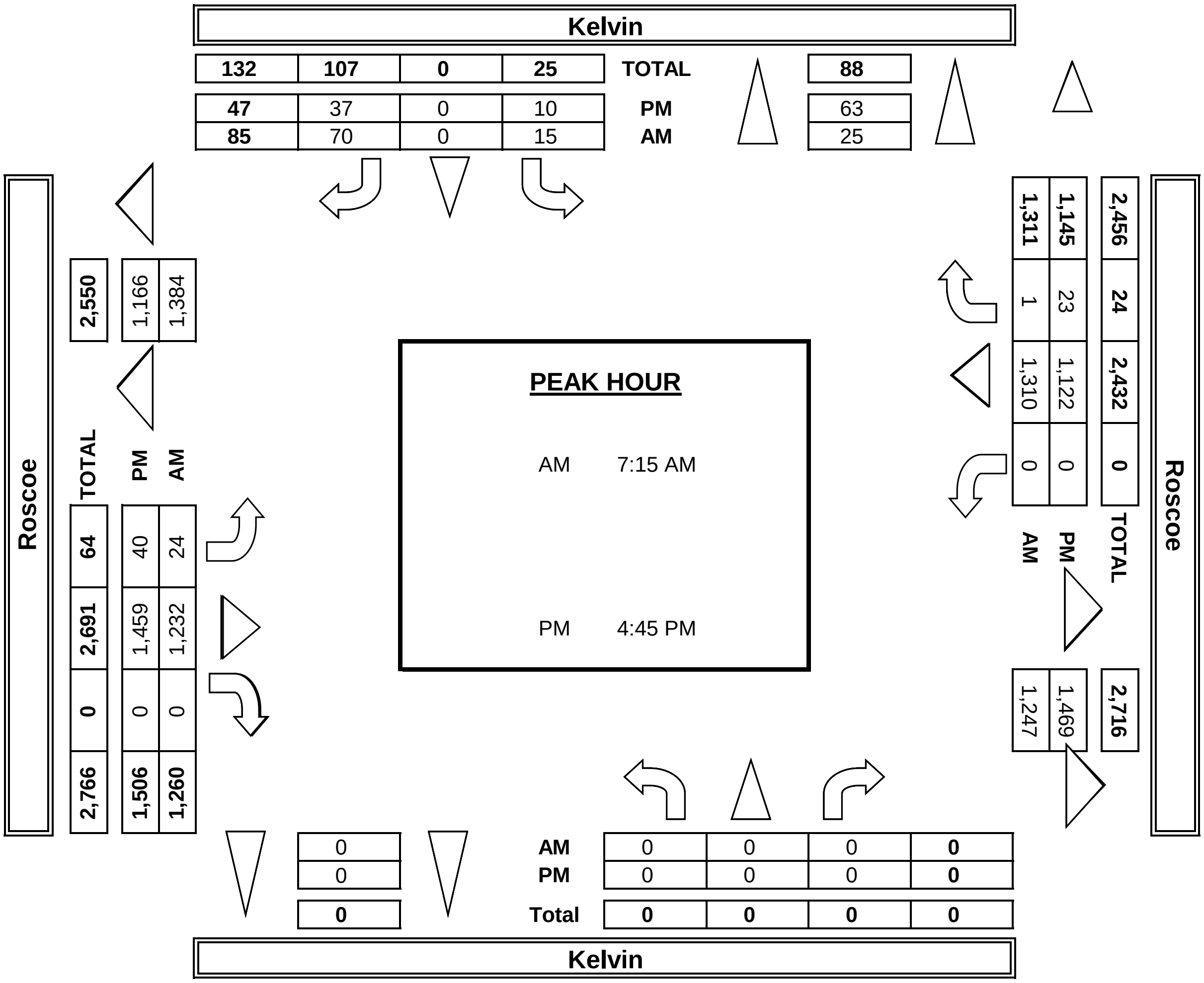
Roscoe (east)

AM	**PM**	**TOTAL**
3,169	**3,146**	**6,315**
12	49	**61**
3,156	3,097	**6,253**
0	0	**0**
3,066	4,095	**7,161**

Kelvin (south)

0	**AM**	0	0	0	**0**
1	**PM**	0	0	0	**0**
1	**TOTAL**	**0**	**0**	**0**	**0**

Kelvin



PEAK HOUR

AM 7:15 AM

PM 4:45 PM

Kelvin

132	**107**	**0**	**25**	**TOTAL**	**88**
47	37	0	10	**PM**	63
85	70	0	15	**AM**	25

Roscoe (west)

TOTAL	**PM**	**AM**
2,550	1,166	1,384
64	40	24
2,691	1,459	1,232
0	0	0
2,766	**1,506**	**1,260**

Roscoe (east)

AM	**PM**	**TOTAL**
1,311	**1,145**	**2,456**
1	23	**24**
1,310	1,122	**2,432**
0	0	**0**
1,247	1,469	**2,716**

Kelvin (south)

0	**AM**	0	0	0	**0**
0	**PM**	0	0	0	**0**
0	**Total**	**0**	**0**	**0**	**0**

Kelvin

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 10/17/17 TUESDAY	LOCATION:	Chatsworth	PROJECT #:	SC1496
	NORTH & SOUTH:	Kelvin	LOCATION #:	8
	EAST & WEST:	Roscoe	CONTROL:	STOP N/S

	NOTES:								AM		▲	
PCE Adjusted	Class	1	2	3	4	5	6		PM		N	
	Factor	1	1.5	2	3	2	2		MD	◄ W		E ►
									OTHER		S	
									OTHER		▼	

			NORTHBOUND Kelvin			SOUTHBOUND Kelvin			EASTBOUND Roscoe			WESTBOUND Roscoe		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	0	0	0	1	0	0	3	0	0	3	0	
AM	7:00 AM	0	0	0	4	0	12	3	225	0	0	266	0	510
	7:15 AM	0	0	0	7	0	26	4	288	0	0	325	0	650
	7:30 AM	0	0	0	2	0	15	10	358	0	0	359	1	745
	7:45 AM	0	0	0	5	0	19	6	324	0	0	346	0	699
	8:00 AM	0	0	0	2	0	11	4	317	0	0	349	0	683
	8:15 AM	0	0	0	2	0	16	7	302	0	0	312	3	641
	8:30 AM	0	0	0	3	0	12	5	271	0	0	248	1	540
	8:45 AM	0	0	0	3	0	12	4	244	0	0	277	0	539
	9:00 AM	0	0	0	0	0	9	3	206	0	0	228	1	446
	9:15 AM	0	0	0	0	0	8	2	206	0	0	209	1	426
	9:30 AM	0	0	0	9	0	5	6	208	0	0	207	4	438
	9:45 AM	0	0	0	0	0	8	4	221	0	0	191	1	425
	VOLUMES	0	0	0	37	0	152	58	3,168	0	0	3,314	12	6,739
	APPROACH %	0%	0%	0%	19%	0%	81%	2%	98%	0%	0%	100%	0%	
	APP/DEPART	0	/	70	189	/	0	3,225	/	3,204	3,326	/	3,466	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	0	16	0	71	24	1,286	0	0	1,379	1	2,776
	APPROACH %	0%	0%	0%	18%	0%	82%	2%	98%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.652			0.890			0.958		0.931
	APP/DEPART	0	/	25	86	/	0	1,310	/	1,302	1,380	/	1,449	0
PM	03:00 PM	0	0	0	1	0	9	5	265	0	0	228	3	511
	3:15 PM	0	0	0	2	0	7	9	296	0	0	243	5	562
	3:30 PM	0	0	0	2	0	6	5	370	0	0	242	4	629
	3:45 PM	0	0	0	4	0	12	8	315	0	0	249	2	590
	4:00 PM	0	0	0	2	0	9	9	376	2	0	210	4	611
	4:15 PM	0	0	0	0	0	4	12	352	0	0	308	2	678
	4:30 PM	0	0	0	2	0	4	12	380	0	0	279	2	678
	4:45 PM	0	0	0	3	0	11	10	353	0	0	292	3	672
	5:00 PM	0	0	0	4	0	6	5	398	0	0	288	7	708
	5:15 PM	0	0	0	3	0	10	15	367	0	0	261	8	663
	5:30 PM	0	0	0	0	0	11	11	387	0	0	312	5	726
	5:45 PM	0	0	0	2	0	9	8	366	0	0	277	4	665
	VOLUMES	0	0	0	25	0	97	108	4,222	2	0	3,188	49	7,690
	APPROACH %	0%	0%	0%	21%	0%	79%	2%	97%	0%	0%	98%	2%	
	APP/DEPART	0	/	157	122	/	2	4,331	/	4,247	3,237	/	3,285	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	10	0	38	41	1,504	0	0	1,153	23	2,768
	APPROACH %	0%	0%	0%	21%	0%	79%	3%	97%	0%	0%	98%	2%	
	PEAK HR FACTOR		0.000			0.848			0.959			0.927		0.953
	APP/DEPART	0	/	64	48	/	0	1,545	/	1,514	1,176	/	1,191	0

U-TURNS

NB	SB	EB	WB	TTL
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

T517

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Chatsworth	PROJECT #:	SC1496
Tue, Oct 17, 17	NORTH & SOUTH:	De Soto	LOCATION #:	7
	EAST & WEST:	Roscoe	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲
N
◄ W
E ►
S
▼

☑dd U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		De Soto			De Soto			Roscoe			Roscoe								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	2	3	0	2	3	0	2	3	0	2	3	0		X	X	X	X	
AM	7:00 AM	20	207	18	17	246	46	36	159	17	36	192	27	1,021	0	0	0	0	0
	7:15 AM	11	225	26	33	316	54	69	235	20	46	254	31	1,320	0	0	0	0	0
	7:30 AM	27	241	46	43	276	58	54	254	13	53	287	21	1,373	0	0	0	0	0
	7:45 AM	25	235	49	28	306	71	67	251	24	46	271	26	1,399	0	0	0	0	0
	8:00 AM	29	239	30	25	279	47	50	242	23	51	235	49	1,299	0	0	0	0	0
	8:15 AM	26	210	38	24	342	45	57	224	20	63	215	31	1,295	0	0	0	0	0
	8:30 AM	25	261	24	26	282	56	43	186	13	53	175	23	1,167	0	0	0	0	0
	8:45 AM	33	202	36	26	276	40	42	182	16	43	179	27	1,102	0	0	0	0	0
	9:00 AM	17	185	24	14	257	43	52	161	13	45	154	18	983	0	0	0	0	0
	9:15 AM	20	180	25	19	255	47	45	170	14	29	134	28	966	0	0	0	0	0
	9:30 AM	19	166	29	21	227	42	44	140	13	40	149	20	910	0	0	0	1	1
	9:45 AM	16	180	39	23	184	26	49	176	17	37	136	24	907	0	0	0	0	0
	VOLUMES	268	2,531	384	299	3,246	575	608	2,380	203	542	2,381	325	13,742	0	0	0	1	1
	APPROACH %	8%	80%	12%	7%	79%	14%	19%	75%	6%	17%	73%	10%						
	APP/DEPART	3,183	/	3,464	4,120	/	3,990	3,191	/	3,064	3,248	/	3,224	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	92	940	151	129	1,177	230	240	982	80	196	1,047	127	5,391					
	APPROACH %	8%	79%	13%	8%	77%	15%	18%	75%	6%	14%	76%	9%						
	PEAK HR FACTOR		0.942			0.948			0.952			0.949		0.963					
	APP/DEPART	1,183	/	1,307	1,536	/	1,453	1,302	/	1,262	1,370	/	1,369	0					
PM	03:00 PM	32	233	31	27	230	41	53	205	22	39	157	25	1,095	0	0	0	0	0
	3:15 PM	30	273	41	32	212	35	51	216	33	33	190	33	1,179	0	0	0	0	0
	3:30 PM	35	279	51	47	220	43	65	270	15	37	176	22	1,260	0	0	0	0	0
	3:45 PM	26	264	56	32	235	36	44	217	30	43	181	27	1,191	0	0	0	0	0
	4:00 PM	24	277	58	36	246	52	64	270	31	38	154	21	1,271	0	0	0	0	0
	4:15 PM	26	299	59	36	242	32	42	236	25	50	221	36	1,304	0	0	0	0	0
	4:30 PM	26	285	51	47	257	40	56	280	20	43	181	29	1,315	0	0	0	0	0
	4:45 PM	28	305	51	35	271	45	58	274	21	55	223	31	1,397	0	0	0	0	0
	5:00 PM	31	265	55	57	271	43	87	291	35	50	181	28	1,394	0	0	0	0	0
	5:15 PM	31	269	60	25	275	52	69	273	20	48	219	35	1,376	0	0	0	0	0
	5:30 PM	30	264	55	47	288	45	68	287	22	55	191	35	1,387	0	1	0	0	1
	5:45 PM	31	295	66	48	264	42	62	242	23	60	195	27	1,355	0	0	0	0	0
	VOLUMES	350	3,308	634	469	3,011	506	719	3,061	297	551	2,269	349	15,524	0	1	0	0	1
	APPROACH %	8%	77%	15%	12%	76%	13%	18%	75%	7%	17%	72%	11%						
	APP/DEPART	4,292	/	4,377	3,986	/	3,859	4,077	/	4,163	3,169	/	3,125	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	120	1,103	221	164	1,105	185	282	1,125	98	208	814	129	5,554					
	APPROACH %	8%	76%	15%	11%	76%	13%	19%	75%	7%	18%	71%	11%						
	PEAK HR FACTOR		0.940			0.957			0.911			0.931		0.994					
	APP/DEPART	1,444	/	1,515	1,454	/	1,411	1,505	/	1,509	1,151	/	1,119	0					

De Soto

NORTH SIDE

Roscoe WEST SIDE

EAST SIDE **Roscoe**

SOUTH SIDE

De Soto

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	26	2	4	19	51	12	0	1	8	21	3	1	0	1	5	11	1	3	10	25
	7:15 AM	17	5	6	16	44	9	4	3	12	28	3	1	1	2	7	5	0	2	2	9
	7:30 AM	10	4	4	5	23	5	2	3	3	13	1	2	1	2	6	4	0	0	0	4
	7:45 AM	6	3	1	7	17	5	2	1	7	15	0	1	0	0	1	1	0	0	0	1
	8:00 AM	9	2	5	7	23	5	1	5	5	16	0	1	0	1	2	4	0	0	1	5
	8:15 AM	6	1	1	6	14	4	1	0	6	11	2	0	1	0	3	0	0	0	0	0
	8:30 AM	2	2	2	10	16	2	0	1	10	13	0	2	1	0	3	0	0	0	0	0
	8:45 AM	5	4	3	9	21	3	3	2	9	17	2	1	1	0	4	0	0	0	0	0
	9:00 AM	3	3	2	5	13	1	3	2	4	10	2	0	0	1	3	0	0	0	0	0
	9:15 AM	5	2	2	9	18	4	2	2	7	15	0	0	0	2	2	1	0	0	0	1
	9:30 AM	1	1	1	6	9	0	0	0	6	6	1	1	1	0	3	0	0	0	0	0
	9:45 AM	6	2	1	6	15	4	2	1	4	11	2	0	0	2	4	0	0	0	0	0
	TOTAL	96	31	32	105	264	54	20	21	81	176	16	10	6	11	43	26	1	5	13	45
PM	3:00 PM	8	10	4	17	39	8	8	4	16	36	0	0	0	1	1	0	2	0	0	2
	3:15 PM	7	3	2	11	23	4	3	1	9	17	2	0	0	1	3	1	0	1	1	3
	3:30 PM	2	6	0	13	21	1	3	0	9	13	1	3	0	4	8	0	0	0	0	0
	3:45 PM	14	8	4	21	47	6	7	3	14	30	4	0	1	4	9	4	1	0	3	8
	4:00 PM	6	12	2	14	34	4	10	1	11	26	1	2	0	2	5	1	0	1	1	3
	4:15 PM	10	10	3	27	50	5	9	3	22	39	3	1	0	2	6	2	0	0	3	5
	4:30 PM	10	7	1	18	36	6	6	1	13	26	2	1	0	4	7	2	0	0	1	3
	4:45 PM	14	9	2	17	42	11	8	2	16	37	1	1	0	1	3	2	0	0	0	2
	5:00 PM	6	7	11	10	34	6	4	5	8	23	0	3	6	2	11	0	0	0	0	0
	5:15 PM	2	6	2	13	23	2	4	1	10	17	0	2	1	3	6	0	0	0	0	0
	5:30 PM	2	8	0	12	22	2	7	0	10	19	0	1	0	2	3	0	0	0	0	0
	5:45 PM	6	11	6	14	37	6	6	5	9	26	0	5	1	5	11	0	0	0	0	0
	TOTAL	87	97	37	187	408	61	75	26	147	309	14	19	9	31	73	12	3	2	9	26

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / South De Soto

East/West Roscoe

Day: Tuesday, October 17, 2017 Weather Sunny

Hours:

School Day Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	283	320	459	359
BIKES	15	42	29	30
BUSES	51	37	72	54

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	314	7:30:00 AM	411	8:15:00 AM	342	7:45:00 AM	361	7:30:00 AM
PM PK 15 MIN	392	5:45:00 PM	380	5:30:00 PM	413	5:00:00 PM	309	4:45:00 PM
AM PK HOUR	1195	7:30:00 AM	1544	7:30:00 AM	1302	7:15:00 AM	1370	7:15:00 AM
PM PK HOUR	1489	4:00:00 PM	1457	5:00:00 PM	1505	4:45:00 PM	1151	4:45:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	83	908	139	1130
8-9	113	912	128	1153
9-10	72	711	117	900
3-4	123	1049	179	1351
4-5	104	1166	219	1489
5-6	123	1093	236	1452
TOTAL	618	5839	1018	7475

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	121	1144	229	1494
8-9	101	1179	188	1468
9-10	77	923	158	1158
3-4	138	897	155	1190
4-5	154	1016	169	1339
5-6	177	1098	182	1457
TOTAL	768	6257	1081	8106

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
2624	8	1	31	21
2621	5	0	14	4
2058	7	0	9	1
2541	21	3	19	5
2828	33	0	26	7
2909	21	0	16	0
15581	95	4	115	38

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	226	899	74	1199
8-9	192	834	72	1098
9-10	190	647	57	894
3-4	213	908	100	1221
4-5	220	1060	97	1377
5-6	286	1093	100	1479
TOTAL	1327	5441	500	7268

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	181	1004	105	1290
8-9	210	804	130	1144
9-10	151	573	90	814
3-4	152	704	107	963
4-5	186	779	117	1082
5-6	213	786	125	1124
TOTAL	1093	4650	674	6417

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2489	30	12	8	5
2242	30	1	8	0
1708	21	0	5	0
2184	48	4	8	1
2459	62	5	7	1
2603	37	0	11	0
13685	228	22	47	7

City Of Los Angeles

Department Of Transportation

MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth De Soto

East/West Roscoe

Day: Tuesday, October 17, 2017 Weather Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	283	320	459	359
BIKES	0	0	0	0
BUSES	51	37	72	54

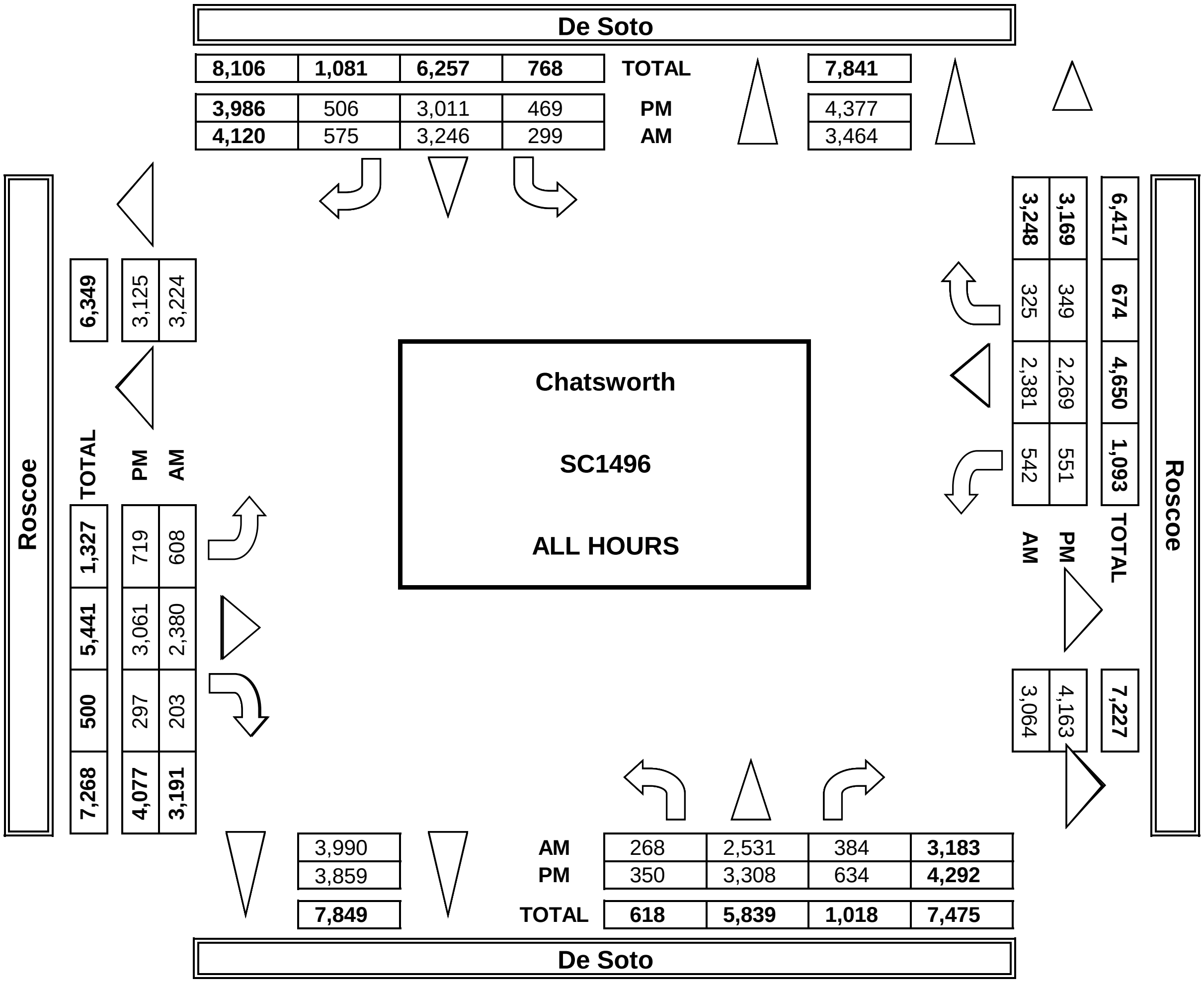
	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	322	7:30:00 AM	423	8:15:00 AM	356	7:45:00 AM	378	7:30:00 AM
PM PK 15 MIN	400	5:45:00 PM	384	5:30:00 PM	423	5:00:00 PM	318	4:15:00 PM
AM PK HOUR	1228	7:30:00 AM	1595	7:30:00 AM	1360	7:15:00 AM	1436	7:15:00 AM
PM PK HOUR	1527	4:00:00 PM	1472	5:00:00 PM	1549	4:45:00 PM	1181	4:45:00 PM

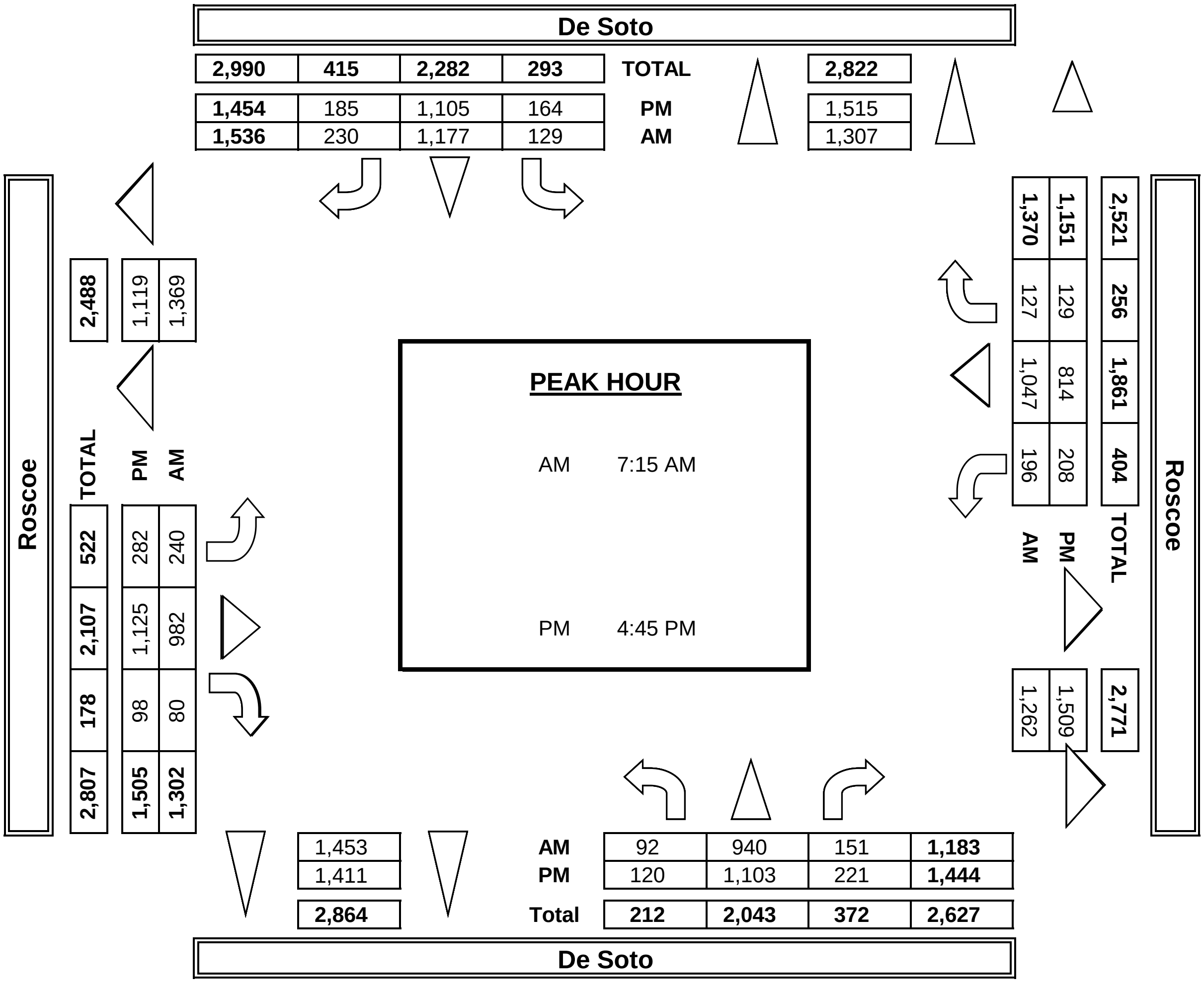
NORTHBOUND Approach					SOUTHBOUND Approach					TOTAL	XING S/L		XING N/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	N-S	Ped	Sch	Ped	Sch
7-8	86	927	145	1157	7-8	124	1178	242	1544	2701	0	0	0	0
8-9	118	937	136	1191	8-9	103	1215	195	1512	2702	0	0	0	0
9-10	76	739	122	936	9-10	80	946	166	1191	2127	0	0	0	0
3-4	125	1073	184	1381	3-4	140	920	162	1222	2602	0	0	0	0
4-5	109	1194	224	1527	4-5	156	1031	178	1365	2891	0	0	0	0
5-6	127	1109	242	1477	5-6	179	1108	186	1472	2949	0	0	0	0
TOTAL	639	5977	1052	7668	TOTAL	780	6397	1127	8303	15971	0	0	0	0

EASTBOUND Approach					WESTBOUND Approach					TOTAL	XING W/L		XING E/L	
Hours	Lt	Th	Rt	Total	Hours	Lt	Th	Rt	Total	E-W	Ped	Sch	Ped	Sch
7-8	237	941	80	1257	7-8	188	1057	106	1350	2607	0	0	0	0
8-9	198	868	75	1140	8-9	216	844	133	1193	2333	0	0	0	0
9-10	202	682	61	944	9-10	157	605	93	854	1798	0	0	0	0
3-4	223	960	103	1285	3-4	154	727	112	993	2278	0	0	0	0
4-5	225	1099	99	1423	4-5	189	801	121	1111	2533	0	0	0	0
5-6	289	1131	102	1522	5-6	216	808	127	1151	2673	0	0	0	0
TOTAL	1371	5680	519	7570	TOTAL	1119	4841	691	6651	14220	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 10/17/17 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Chatsworth De Soto Roscoe	PROJECT #: LOCATION #: CONTROL:	SC1496 7 SIGNAL

	NOTES:								AM		▲
PCE Adjusted	Class	1	2	3	4	5	6		PM		N
	Factor	1	1.5	2	3	2	2		MD	◄ W		E ►
									OTHER		S
									OTHER		▼

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
			De Soto			De Soto			Roscoe			Roscoe							
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	2	3	0	2	3	0	2	3	0	2	3	0						
AM	7:00 AM	21	215	19	18	255	49	38	170	19	38	199	27	1,066					0
	7:15 AM	11	230	27	34	322	55	71	246	22	48	268	31	1,363					0
	7:30 AM	28	246	49	44	288	62	59	263	15	54	303	21	1,430					0
	7:45 AM	26	238	51	29	314	76	70	262	25	48	287	27	1,450					0
	8:00 AM	31	248	34	26	286	49	52	254	24	52	248	50	1,351					0
	8:15 AM	28	214	40	25	352	47	60	232	21	66	226	32	1,340					0
	8:30 AM	25	268	26	26	291	59	44	194	14	54	184	24	1,207					0
	8:45 AM	35	208	37	26	286	41	43	189	17	44	187	27	1,138					0
	9:00 AM	17	191	25	15	261	45	55	168	14	47	165	19	1,019					0
	9:15 AM	21	187	25	20	262	49	48	179	15	30	142	29	1,005					0
	9:30 AM	21	174	32	21	233	45	47	150	14	42	155	20	950					0
	9:45 AM	18	188	41	24	190	28	53	186	19	39	143	26	951					0
	VOLUMES	279	2,602	403	306	3,338	602	636	2,491	215	560	2,505	332	14,266	0	0	0	0	0
	APPROACH %	8%	79%	12%	7%	79%	14%	19%	75%	6%	16%	74%	10%						
	APP/DEPART	3,284	/	3,569	4,246	/	4,112	3,341	/	3,199	3,396	/	3,386	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	95	960	159	132	1,210	242	251	1,025	85	202	1,106	129	5,592					
	APPROACH %	8%	79%	13%	8%	76%	15%	18%	75%	6%	14%	77%	9%						
	PEAK HR FACTOR		0.943			0.946			0.955			0.950		0.964					
	APP/DEPART	1,214	/	1,340	1,583	/	1,496	1,360	/	1,315	1,436	/	1,442	0					
PM	03:00 PM	33	240	32	28	236	42	54	220	22	39	162	28	1,133					0
	3:15 PM	30	279	42	33	220	37	54	225	35	34	197	34	1,216					0
	3:30 PM	35	283	52	48	224	45	68	287	16	37	181	23	1,298					0
	3:45 PM	27	272	59	32	241	38	47	229	31	45	188	28	1,234					0
	4:00 PM	25	286	60	36	251	54	66	283	31	39	158	21	1,307					0
	4:15 PM	27	306	61	37	246	34	42	245	27	50	231	37	1,342					0
	4:30 PM	28	291	52	48	260	43	56	289	21	45	185	31	1,346					0
	4:45 PM	29	312	52	35	274	47	61	283	21	56	229	32	1,430					0
	5:00 PM	32	268	57	58	274	44	88	300	35	51	187	29	1,422					0
	5:15 PM	32	273	62	26	277	53	70	284	21	49	225	35	1,405					0
	5:30 PM	31	268	56	47	291	46	69	296	23	56	198	36	1,414					0
	5:45 PM	32	300	68	48	267	43	62	252	24	61	199	28	1,381					0
	VOLUMES	360	3,375	650	475	3,059	525	736	3,190	304	559	2,336	360	15,925	0	0	0	0	0
	APPROACH %	8%	77%	15%	12%	75%	13%	17%	75%	7%	17%	72%	11%						
	APP/DEPART	4,384	/	4,470	4,058	/	3,922	4,229	/	4,314	3,255	/	3,220	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	124	1,121	227	166	1,115	190	288	1,162	100	212	838	132	5,671					
	APPROACH %	8%	76%	15%	11%	76%	13%	19%	75%	6%	18%	71%	11%						
	PEAK HR FACTOR		0.935			0.959			0.917			0.932		0.991					
	APP/DEPART	1,471	/	1,540	1,471	/	1,426	1,549	/	1,554	1,181	/	1,151	0					

De Soto

NORTH SIDE

Roscoe WEST SIDE

EAST SIDE **Roscoe**

SOUTH SIDE

De Soto

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T517

DATE: Tue, Oct 17, 17	LOCATION: NORTH & SOUTH: EAST & WEST:	Chatsworth De Soto Victory	PROJECT #: SC1496 LOCATION #: 9 CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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☑dd U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		De Soto			De Soto			Victory			Victory								
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	3	0	1	3	0	2	3	0	2	3	1		X	X	X	X	
AM	7:00 AM	15	160	43	37	294	52	12	152	9	82	182	11	1,049	0	0	0	0	0
	7:15 AM	7	131	58	66	394	42	14	202	7	128	360	4	1,413	0	0	0	0	0
	7:30 AM	24	217	91	40	433	52	23	219	21	124	340	13	1,597	0	0	0	0	0
	7:45 AM	22	213	87	57	414	57	21	235	20	152	364	25	1,667	0	0	0	0	0
	8:00 AM	12	246	98	43	414	53	23	209	16	144	366	23	1,647	0	0	0	0	0
	8:15 AM	22	175	77	39	387	52	18	206	16	150	394	24	1,560	0	0	0	0	0
	8:30 AM	17	207	75	27	380	67	30	190	16	131	321	18	1,479	0	0	0	0	0
	8:45 AM	20	137	59	33	376	53	18	177	21	126	318	20	1,358	0	0	0	0	0
	9:00 AM	22	170	49	30	323	65	30	150	21	100	240	11	1,211	0	0	0	0	0
	9:15 AM	20	150	45	46	297	46	24	178	20	99	270	22	1,217	0	0	0	0	0
	9:30 AM	22	171	56	31	249	35	30	152	24	76	237	24	1,107	0	0	0	0	0
	9:45 AM	21	137	42	26	257	49	22	145	23	79	253	23	1,077	0	0	0	0	0
	VOLUMES	224	2,114	780	475	4,218	623	265	2,215	214	1,391	3,645	218	16,382	0	0	0	0	0
	APPROACH %	7%	68%	25%	9%	79%	12%	10%	82%	8%	26%	69%	4%						
	APP/DEPART	3,118	/	2,597	5,316	/	5,823	2,694	/	3,470	5,254	/	4,492	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	80	851	353	179	1,648	214	85	869	73	570	1,464	85	6,471					
	APPROACH %	6%	66%	27%	9%	81%	10%	8%	85%	7%	27%	69%	4%						
	PEAK HR FACTOR		0.902			0.966			0.930			0.933		0.970					
	APP/DEPART	1,284	/	1,021	2,041	/	2,291	1,027	/	1,401	2,119	/	1,758	0					
PM	03:00 PM	26	280	63	19	206	38	51	284	33	51	227	24	1,302	0	0	0	0	0
	3:15 PM	33	295	97	21	202	38	72	280	52	40	225	29	1,384	0	0	0	0	0
	3:30 PM	23	274	74	23	186	29	69	309	35	65	230	21	1,338	0	0	0	0	0
	3:45 PM	24	302	77	19	185	43	55	308	36	43	238	27	1,357	0	0	0	0	0
	4:00 PM	23	301	82	29	181	39	91	304	50	55	227	21	1,403	0	0	0	0	0
	4:15 PM	33	282	86	23	202	47	72	307	60	47	241	22	1,422	0	0	0	0	0
	4:30 PM	12	308	89	25	199	47	69	351	33	65	260	28	1,486	0	0	0	0	0
	4:45 PM	13	341	82	32	191	43	92	339	26	59	243	28	1,489	0	0	0	0	0
	5:00 PM	14	296	99	37	217	36	84	378	26	43	225	31	1,486	1	0	0	0	1
	5:15 PM	5	299	100	15	202	50	101	373	40	56	253	31	1,525	0	0	0	0	0
	5:30 PM	16	312	75	36	212	46	84	406	36	55	311	44	1,633	0	0	0	0	0
	5:45 PM	19	335	89	21	214	38	93	347	41	63	261	37	1,558	0	0	0	0	0
	VOLUMES	241	3,625	1,013	300	2,397	494	933	3,986	468	642	2,941	343	17,383	1	0	0	0	1
	APPROACH %	5%	74%	21%	9%	75%	15%	17%	74%	9%	16%	75%	9%						
	APP/DEPART	4,879	/	4,901	3,191	/	3,508	5,387	/	5,299	3,926	/	3,675	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	54	1,242	363	109	845	170	362	1,504	143	217	1,050	143	6,202					
	APPROACH %	3%	75%	22%	10%	75%	15%	18%	75%	7%	15%	74%	10%						
	PEAK HR FACTOR		0.936			0.956			0.955			0.860		0.949					
	APP/DEPART	1,659	/	1,747	1,124	/	1,206	2,009	/	1,976	1,410	/	1,273	0					

De Soto

NORTH SIDE

Victory WEST SIDE

EAST SIDE **Victory**

SOUTH SIDE

De Soto

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS					SCHOOL AGE PED				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	16	3	7	7	33	7	2	5	5	19	3	0	0	1	4	6	1	2	1	10
	7:15 AM	10	6	7	8	31	5	6	6	6	23	2	0	0	2	4	3	0	1	0	4
	7:30 AM	8	12	9	9	38	2	8	3	5	18	2	1	0	3	6	4	3	6	1	14
	7:45 AM	12	5	4	12	33	4	5	3	10	22	7	0	0	2	9	1	0	1	0	2
	8:00 AM	12	0	1	13	26	3	0	1	9	13	3	0	0	2	5	6	0	0	2	8
	8:15 AM	9	5	5	7	26	3	4	4	6	17	3	0	0	1	4	3	1	1	0	5
	8:30 AM	5	2	3	11	21	3	2	3	7	15	0	0	0	4	4	2	0	0	0	2
	8:45 AM	9	3	1	8	21	6	3	1	7	17	2	0	0	1	3	1	0	0	0	1
	9:00 AM	6	7	4	5	22	1	5	3	4	13	5	0	0	0	5	0	2	1	1	4
	9:15 AM	12	3	1	4	20	2	2	0	1	5	10	0	1	3	14	0	1	0	0	1
	9:30 AM	10	0	2	4	16	2	0	1	4	7	8	0	0	0	8	0	0	1	0	1
	9:45 AM	3	5	0	9	17	2	3	0	6	11	1	1	0	3	5	0	1	0	0	1
	TOTAL	112	51	44	97	304	40	40	30	70	180	46	2	1	22	71	26	9	13	5	53
PM	3:00 PM	7	2	7	2	18	1	1	3	2	7	5	1	1	0	7	1	0	3	0	4
	3:15 PM	11	1	2	5	19	5	1	0	2	8	5	0	1	2	8	1	0	1	1	3
	3:30 PM	5	9	6	7	27	3	6	5	3	17	2	2	0	1	5	0	1	1	3	5
	3:45 PM	5	3	1	3	12	3	3	1	2	9	2	0	0	0	2	0	0	0	1	1
	4:00 PM	11	9	7	4	31	5	8	4	4	21	5	0	0	0	5	1	1	3	0	5
	4:15 PM	7	5	3	7	22	6	4	2	6	18	1	1	0	1	3	0	0	1	0	1
	4:30 PM	11	1	10	3	25	7	1	6	2	16	2	0	0	0	2	2	0	4	1	7
	4:45 PM	0	2	4	5	11	0	1	2	4	7	0	0	1	1	2	0	1	1	0	2
	5:00 PM	7	8	7	3	25	2	8	6	1	17	5	0	0	2	7	0	0	1	0	1
	5:15 PM	19	8	8	10	45	10	8	7	7	32	8	0	1	3	12	1	0	0	0	1
	5:30 PM	9	5	2	10	26	2	5	2	8	17	6	0	0	2	8	1	0	0	0	1
	5:45 PM	7	2	6	9	24	4	2	6	6	18	2	0	0	3	5	1	0	0	0	1
	TOTAL	99	55	63	68	285	48	48	44	47	187	43	4	4	15	66	8	3	15	6	32

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: De Soto

East/West: Victory

Day: Tuesday, October 17, 2017

Weather: Sunny

Hours:

School Day: Yes

District:

I/S CODE:

	N/B	S/B	E/B	W/B
DUAL-WHEELED	239	229	213	204
BIKES	5	37	6	89
BUSES	47	37	38	42

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	356	8:00:00 AM	528	7:45:00 AM	276	7:45:00 AM	568	8:15:00 AM
PM PK 15 MIN	443	5:45:00 PM	294	5:30:00 PM	526	5:30:00 PM	410	5:30:00 PM
AM PK HOUR	1284	7:30:00 AM	2065	7:15:00 AM	1027	7:30:00 AM	2119	7:30:00 AM
PM PK HOUR	1659	5:00:00 PM	1124	5:00:00 PM	2009	5:00:00 PM	1410	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	68	721	279	1068
8-9	71	765	309	1145
9-10	85	628	192	905
3-4	106	1151	311	1568
4-5	81	1232	339	1652
5-6	54	1242	363	1659
TOTAL	465	5739	1793	7997

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	200	1535	203	1938
8-9	142	1557	225	1924
9-10	133	1126	195	1454
3-4	82	779	148	1009
4-5	109	773	176	1058
5-6	109	845	170	1124
TOTAL	775	6615	1117	8507

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
3006	21	4	18	14
3069	9	1	15	12
2359	10	4	7	0
2577	11	1	12	2
2710	14	2	18	3
2783	23	0	18	3
16504	88	12	88	34

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	70	808	57	935
8-9	89	782	69	940
9-10	106	625	88	819
3-4	247	1181	156	1584
4-5	324	1301	169	1794
5-6	362	1504	143	2009
TOTAL	1198	6201	682	8081

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	486	1246	53	1785
8-9	551	1399	85	2035
9-10	354	1000	80	1434
3-4	199	920	101	1220
4-5	226	971	99	1296
5-6	217	1050	143	1410
TOTAL	2033	6586	561	9180

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2720	26	2	17	10
2975	29	2	9	1
2253	15	1	4	2
2804	9	5	9	5
3090	16	1	14	9
3419	22	0	21	1
17261	117	11	74	28

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PCE ADJUSTED

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth De Soto

East/West Victory

Day: Tuesday, October 17, 2017 Weather Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	239	229	213	204
BIKES	0	0	0	0
BUSES	47	37	38	42

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	365	8:00:00 AM	540	7:45:00 AM	280	7:45:00 AM	579	8:15:00 AM
PM PK 15 MIN	447	5:45:00 PM	297	5:30:00 PM	530	5:30:00 PM	417	5:30:00 PM
AM PK HOUR	1310	7:30:00 AM	2102	7:15:00 AM	1052	7:30:00 AM	2152	7:30:00 AM
PM PK HOUR	1680	5:00:00 PM	1130	5:00:00 PM	2030	5:00:00 PM	1432	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	70	739	281	1089
8-9	74	788	315	1176
9-10	86	653	195	934
3-4	109	1182	317	1608
4-5	81	1252	345	1678
5-6	54	1261	365	1680
TOTAL	473	5873	1818	8164

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	203	1566	210	1978
8-9	147	1582	233	1961
9-10	135	1150	199	1484
3-4	85	801	149	1034
4-5	110	785	179	1073
5-6	109	851	171	1130
TOTAL	788	6732	1139	8659

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
3067	0	0	0	0
3137	0	0	0	0
2417	0	0	0	0
2641	0	0	0	0
2751	0	0	0	0
2810	0	0	0	0
16822	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	73	823	62	957
8-9	93	798	72	962
9-10	111	641	92	843
3-4	252	1197	161	1609
4-5	329	1324	173	1825
5-6	366	1520	145	2030
TOTAL	1222	6302	702	8226

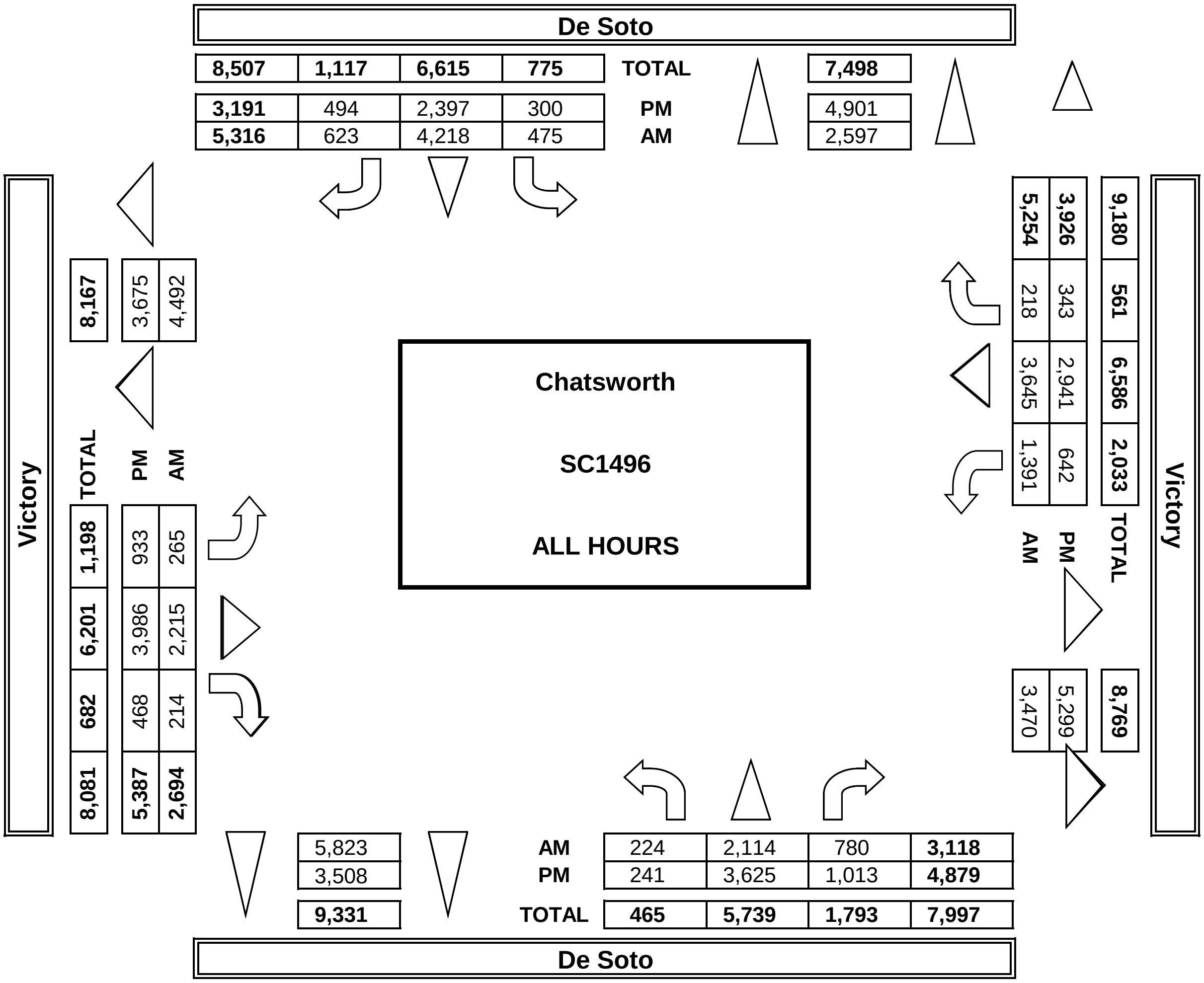
WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	494	1269	54	1817
8-9	555	1425	87	2066
9-10	358	1022	83	1462
3-4	201	931	103	1234
4-5	229	984	101	1314
5-6	218	1069	145	1432
TOTAL	2054	6700	571	9324

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
2774	0	0	0	0
3028	0	0	0	0
2305	0	0	0	0
2843	0	0	0	0
3139	0	0	0	0
3462	0	0	0	0
17550	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



De Soto (north)

8,507	**1,117**	**6,615**	**775**	**TOTAL**	**7,498**
3,191	494	2,397	300	**PM**	4,901
5,316	623	4,218	475	**AM**	2,597

Victory (west)

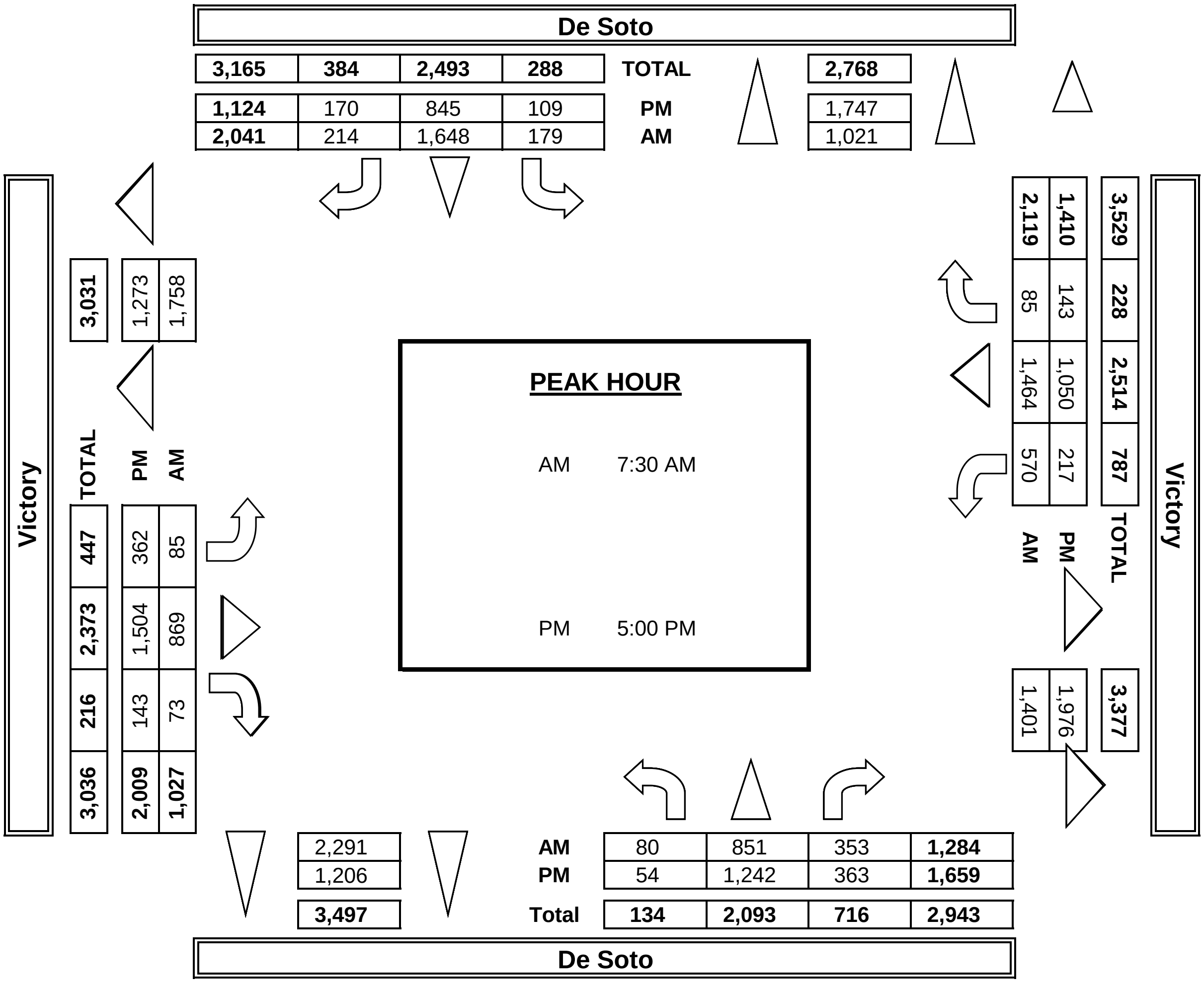
TOTAL	**8,167**	**1,198**	**6,201**	**682**	**8,081**
PM	3,675	933	3,986	468	**5,387**
AM	4,492	265	2,215	214	**2,694**

Victory (east)

AM	**5,254**	218	3,645	1,391	3,470
PM	**3,926**	343	2,941	642	5,299
TOTAL	**9,180**	**561**	**6,586**	**2,033**	**8,769**

De Soto (south)

5,823	**AM**	224	2,114	780	**3,118**
3,508	**PM**	241	3,625	1,013	**4,879**
9,331	**TOTAL**	**465**	**5,739**	**1,793**	**7,997**



De Soto (north)

3,165	**384**	**2,493**	**288**	**TOTAL**	**2,768**
1,124	170	845	109	**PM**	1,747
2,041	214	1,648	179	**AM**	1,021

Victory (west)

TOTAL	**3,031**	**447**	**2,373**	**216**	**3,036**
PM	1,273	362	1,504	143	**2,009**
AM	1,758	85	869	73	**1,027**

Victory (east)

AM	**2,119**	85	1,464	570	1,401
PM	**1,410**	143	1,050	217	1,976
TOTAL	**3,529**	**228**	**2,514**	**787**	**3,377**

De Soto (south)

2,291	**AM**	80	851	353	**1,284**
1,206	**PM**	54	1,242	363	**1,659**
3,497	**Total**	**134**	**2,093**	**716**	**2,943**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 10/17/17 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Chatsworth De Soto Victory	PROJECT #: LOCATION #: CONTROL:	SC1496 9 SIGNAL

	NOTES:								AM		▲	
PCE Adjusted	Class	1	2	3	4	5	6		PM		N	
	Factor	1	1.5	2	3	2	2		MD	◄ W		E ►
									OTHER		S	
									OTHER		▼	

		NORTHBOUND De Soto			SOUTHBOUND De Soto			EASTBOUND Victory			WESTBOUND Victory				**U-TURNS**				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	3	0	1	3	0	2	3	0	2	3	1						
AM	7:00 AM	15	165	44	38	300	55	13	155	11	84	187	11	1,076					0
	7:15 AM	8	135	59	67	401	45	14	206	8	129	369	4	1,442					0
	7:30 AM	25	221	92	41	440	53	25	225	23	126	345	13	1,626					0
	7:45 AM	22	218	88	58	425	58	21	238	21	155	369	26	1,697					0
	8:00 AM	12	254	99	43	418	56	24	213	17	145	371	24	1,674					0
	8:15 AM	22	180	79	41	393	54	19	212	17	151	404	25	1,594					0
	8:30 AM	18	214	78	28	385	68	32	193	17	133	327	18	1,509					0
	8:45 AM	22	141	60	35	386	56	18	181	22	126	324	21	1,389					0
	9:00 AM	23	177	51	31	330	67	31	153	22	101	247	12	1,241					0
	9:15 AM	20	154	46	47	302	47	25	183	20	101	275	23	1,240					0
	9:30 AM	23	179	57	32	253	36	33	155	26	77	244	24	1,136					0
	9:45 AM	21	144	42	26	265	49	22	151	24	80	257	25	1,105					0
	VOLUMES	229	2,179	791	484	4,297	642	276	2,262	225	1,406	3,716	223	16,727	0	0	0	0	0
	APPROACH %	7%	68%	25%	9%	79%	12%	10%	82%	8%	26%	70%	4%						
	APP/DEPART	3,199	/	2,678	5,422	/	5,927	2,762	/	3,536	5,345	/	4,586	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	81	873	357	182	1,676	220	89	887	77	577	1,488	87	6,591					
	APPROACH %	6%	67%	27%	9%	81%	11%	8%	84%	7%	27%	69%	4%						
	PEAK HR FACTOR		0.897			0.962			0.941			0.929		0.971					
	APP/DEPART	1,310	/	1,049	2,078	/	2,329	1,052	/	1,425	2,152	/	1,788	0					
PM	03:00 PM	28	288	65	20	212	38	53	286	33	52	232	25	1,330					0
	3:15 PM	35	301	98	22	208	39	73	284	54	40	227	29	1,407					0
	3:30 PM	23	282	76	23	194	29	70	315	36	65	232	22	1,364					0
	3:45 PM	24	312	79	20	188	43	57	313	39	44	241	27	1,384					0
	4:00 PM	23	305	85	29	186	40	93	309	50	55	230	22	1,425					0
	4:15 PM	33	290	88	24	205	48	73	311	62	49	247	22	1,448					0
	4:30 PM	12	312	91	26	202	48	70	356	35	67	262	28	1,506					0
	4:45 PM	13	346	83	32	193	44	94	348	27	59	246	29	1,511					0
	5:00 PM	14	300	99	37	218	37	85	381	26	43	230	31	1,499					0
	5:15 PM	5	304	101	15	203	50	103	378	40	57	256	33	1,543					0
	5:30 PM	16	318	77	36	215	46	84	409	37	55	318	45	1,654					0
	5:45 PM	19	339	89	21	216	38	94	352	42	63	266	37	1,575					0
	VOLUMES	244	3,694	1,027	304	2,436	498	946	4,041	478	648	2,984	348	17,645	0	0	0	0	0
	APPROACH %	5%	74%	21%	9%	75%	15%	17%	74%	9%	16%	75%	9%						
	APP/DEPART	4,965	/	4,988	3,237	/	3,561	5,464	/	5,371	3,980	/	3,726	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	54	1,261	365	109	851	171	366	1,520	145	218	1,069	145	6,271					
	APPROACH %	3%	75%	22%	10%	75%	15%	18%	75%	7%	15%	75%	10%						
	PEAK HR FACTOR		0.939			0.951			0.958			0.859		0.948					
	APP/DEPART	1,680	/	1,771	1,130	/	1,213	2,030	/	1,994	1,432	/	1,294	0					

De Soto

NORTH SIDE

Victory WEST SIDE

EAST SIDE **Victory**

SOUTH SIDE

De Soto

- CMA Worksheets

Level of Service Worksheet

(Circular 212 Method)

I/S #:	North-South Street:	De Soto Avenue	Year of Count:	2017	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
1	East-West Street:	Devonshire Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

	Existing Condition	Existing Plus Project	Future Condition W/O Project	Future Condition W/ Project	Future W/ Project W/ Mitigation
No. of Phases	4	4	4	4	4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 3	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 3	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 3	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 3	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 3
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	141	2	**78**		141	**78**	0	148	2	**81**		148	2	**81**		148	2	**81**
	Left-Through		0							0				0				0	
	Through	939	2	344		939	344	113	1099	2	399		1099	2	399		1099	2	399
	Through-Right		1							1				1				1	
	Right	93	0	93		93	93	0	98	0	98		98	0	98		98	0	98
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	83	2	46		83	46	14	101	2	56		101	2	56		101	2	56
	Left-Through		0							0				0				0	
	Through	1,263	2	**452**		1263	**452**	82	1408	2	**503**		1408	2	**503**		1408	2	**503**
	Through-Right		1							1				1				1	
	Right	93	0	93		93	93	2	100	0	100		100	0	100		100	0	100
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	261	2	144		261	144	5	279	2	153		279	2	153		279	2	153
	Left-Through		0							0				0				0	
	Through	788	1	**451**		788	**451**	16	843	1	**482**		843	1	**482**		843	1	**482**
	Through-Right		1							1				1				1	
	Right	114	0	114		114	114	0	120	0	120		120	0	120		120	0	120
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	239	2	**131**		239	**131**	0	251	2	**138**		251	2	**138**		251	2	**138**
	Left-Through		0							0				0				0	
	Through	772	2	386		772	386	13	823	2	412		823	2	412		823	2	412
	Through-Right		0							0				0				0	
	Right	89	1	43		89	43	12	105	1	49		105	1	49		105	1	49
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		*North-South:*		530	*North-South:*		530		*North-South:*		584		*North-South:*		584		*North-South:*		584
		East-West:		582	*East-West:*		582		*East-West:*		620		*East-West:*		620		*East-West:*		620
		SUM:		1112	*SUM:*		1112		*SUM:*		1204		*SUM:*		1204		*SUM:*		1204
VOLUME/CAPACITY (*V/C*) RATIO:				0.809			0.809				0.876				0.876				0.876
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.709			0.709				0.776				0.776				0.776
LEVEL OF SERVICE (LOS):				C			C				C				C				C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #:	North-South Street:	De Soto Avenue	Year of Count:	2017	Ambient Growth: (%):	0.54	Conducted by:	0	Date: 9/19/2019
1	East-West Street:	Devonshire Street	Projection Year:	2026	Peak Hour:	PM	Reviewed by:		Project: De Soto Trunk Line

No. of Phases	4	4	4	4	4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0
	EB-- 0 WB-- 3	EB-- 0 WB-- 3	EB-- 0 WB-- 3	EB-- 0 WB-- 3	EB-- 0 WB-- 3
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	131	2	72		131	72	0	138	2	76		138	2	76		138	2	76
	Left-Through		0							0				0				0	
	Through	1406	2	**499**		1406	**499**	111	1587	2	**561**		1587	2	**561**		1587	2	**561**
	Through-Right		1							1				1				1	
	Right	92	0	92		92	92	0	97	0	97		97	0	97		97	0	97
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	179	2	**98**		179	**98**	13	201	2	**111**		201	2	**111**		201	2	**111**
	Left-Through		0							0				0				0	
	Through	981	2	389		981	389	128	1158	2	453		1158	2	453		1158	2	453
	Through-Right		1							1				1				1	
	Right	186	0	186		186	186	6	201	0	201		201	0	201		201	0	201
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	302	2	166		302	166	4	321	2	177		321	2	177		321	2	177
	Left-Through		0							0				0				0	
	Through	736	1	**429**		736	**429**	14	787	1	**457**		787	1	**457**		787	1	**457**
	Through-Right		1							1				1				1	
	Right	121	0	121		121	121	0	127	0	127		127	0	127		127	0	127
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	134	2	**74**		134	**74**	0	141	2	**78**		141	2	**78**		141	2	**78**
	Left-Through		0							0				0				0	
	Through	658	2	329		658	329	13	704	2	353		704	2	353		704	2	353
	Through-Right		0							0				0				0	
	Right	140	1	42		140	42	11	158	1	47		158	1	47		158	1	47
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	597		*North-South:*	597			*North-South:*	672			*North-South:*	672			*North-South:*	672
			East-West:	503		*East-West:*	503			*East-West:*	535			*East-West:*	535			*East-West:*	535
			SUM:	1100		*SUM:*	1100			*SUM:*	1207			*SUM:*	1207			*SUM:*	1207
VOLUME/CAPACITY (*V/C*) RATIO:				0.800			0.800				0.878				0.878				0.878
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.700			0.700				0.778				0.778				0.778
LEVEL OF SERVICE (LOS):				C			C				C				C				C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	**North-South Street:**	**Mason Avenue**	**Year of Count:**	**2019**	**Ambient Growth: (%):**
2	**East-West Street:**	**Devonshire Street**	**Projection Year:**	**2026**	**Peak Hour:**

Ambient Growth: (%):	**0.54**	**Conducted by:**		**Date:**	**9/19/2019**
Peak Hour:	**AM**	**Reviewed by:**		**Project:**	**De Soto Trunk Line**

	Existing Condition	Existing Plus Project	Future Condition w/o Project	Future Condition w/ Project	Future w/ Project w/ Mitigation
No. of Phases	3	3	3	3	3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	**EXISTING CONDITION**			**EXISTING PLUS PROJECT**			**FUTURE CONDITION W/O PROJECT**				**FUTURE CONDITION W/ PROJECT**				**FUTURE W/ PROJECT W/ MITIGATION**			
		Volume	**No. of Lanes**	**Lane Volume**	**Project Traffic**	**Total Volume**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	**Left**	103	1	103		103	103	25	132	1	132		132	1	132		132	1	132
	Left-Through		0							0				0				0	
	Through	713	2	**357**		713	**357**	50	790	2	**395**		790	2	**395**		790	2	**395**
	Through-Right		0							0				0				0	
	Right	115	1	52		115	52	12	131	1	59		131	1	59		131	1	59
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	**Left**	349	1	**349**		349	**349**	0	362	1	**362**		362	1	**362**		362	1	**362**
	Left-Through		0							0				0				0	
	Through	970	2	434		970	434	88	1095	2	480		1095	2	480		1095	2	480
	Through-Right		1							1				1				1	
	Right	333	0	333		333	333	0	346	0	346		346	0	346		346	0	346
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	**Left**	92	1	92		92	92	1	97	1	97		97	1	97		97	1	97
	Left-Through		0							0				0				0	
	Through	796	2	**308**		796	**308**	1	828	2	**329**		828	2	**329**		828	2	**329**
	Through-Right		1							1				1				1	
	Right	127	0	127		127	127	28	160	0	160		160	0	160		160	0	160
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	**Left**	126	1	**126**		126	**126**	14	145	1	**145**		145	1	**145**		145	1	**145**
	Left-Through		0							0				0				0	
	Through	893	2	338		893	338	0	927	2	351		927	2	351		927	2	351
	Through-Right		1							1				1				1	
	Right	120	0	120		120	120	0	125	0	125		125	0	125		125	0	125
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	

	Existing Condition	Existing Plus Project	Future Condition w/o Project	Future Condition w/ Project	Future w/ Project w/ Mitigation
CRITICAL VOLUMES *North-South:*	706	706	757	757	757
East-West:	434	434	474	474	474
SUM:	1140	1140	1231	1231	1231
VOLUME/CAPACITY *(V/C)* RATIO:	0.800	0.800	0.864	0.864	0.864
***V/C* LESS ATSAC/ATCS ADJUSTMENT:**	0.700	0.700	0.764	0.764	0.764
LEVEL OF SERVICE (LOS):	C	C	C	C	C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**∆*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:	0	Date:	9/19/2019
2	East-West Street:	Devonshire Street	Projection Year:	2026	Peak Hour:	PM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases					3					3					3					3					3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0					0					0					0					0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	*NB--*	0	*SB--*		0	*NB--*	0	*SB--*		0	*NB--*	0	*SB--*		0	*NB--*	0	*SB--*		0	*NB--*	0	*SB--*		0
	EB--	0	*WB--*		0	*EB--*	0	*WB--*		0	*EB--*	0	*WB--*		0	*EB--*	0	*WB--*		0	*EB--*	0	*WB--*		0
ATSAC-1 or ATSAC+ATCS-2?					2					2					2					2					2
Override Capacity					0					0					0					0					0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	173	1	173		173	173	23	203	1	203		203	1	203		203	1	203
	Left-Through		0							0				0				0	
	Through	1301	2	**651**		1301	**651**	123	1474	2	**737**		1474	2	**737**		1474	2	**737**
	Through-Right		0							0				0				0	
	Right	122	1	72		122	72	11	138	1	79		138	1	79		138	1	79
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	151	1	**151**		151	**151**	0	157	1	**157**		157	1	**157**		157	1	**157**
	Left-Through		0							0				0				0	
	Through	596	2	240		596	240	78	697	2	275		697	2	275		697	2	275
	Through-Right		1							1				1				1	
	Right	123	0	123		123	123	1	129	0	129		129	0	129		129	0	129
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	140	1	140		140	140	1	146	1	146		146	1	146		146	1	146
	Left-Through		0							0				0				0	
	Through	1000	2	**380**		1000	**380**	1	1039	2	**403**		1039	2	**403**		1039	2	**403**
	Through-Right		1							1				1				1	
	Right	140	0	140		140	140	25	170	0	170		170	0	170		170	0	170
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	101	1	**101**		101	**101**	13	118	1	**118**		118	1	**118**		118	1	**118**
	Left-Through		0							0				0				0	
	Through	709	2	317		709	317	1	737	2	329		737	2	329		737	2	329
	Through-Right		1							1				1				1	
	Right	241	0	241		241	241	0	250	0	250		250	0	250		250	0	250
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	802		*North-South:*	802			*North-South:*	894			*North-South:*	894			*North-South:*	894
			East-West:	481		*East-West:*	481			*East-West:*	521			*East-West:*	521			*East-West:*	521
			SUM:	1283		*SUM:*	1283			*SUM:*	1415			*SUM:*	1415			*SUM:*	1415
VOLUME/CAPACITY *(V/C)* RATIO:				0.900			0.900				0.993				0.993				0.993
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.800			0.800				0.893				0.893				0.893
LEVEL OF SERVICE (LOS):				D			D				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	**North-South Street:**	Mason Avenue	**Year of Count:**	2019	**Ambient Growth: (%):**	0.54	**Conducted by:**	
3	**East-West Street:**	Mayall Street	**Projection Year:**	2026	**Peak Hour:**	AM	**Reviewed by:**	

Date:	9/19/2019
Project:	De Soto Trunk Line

	Existing Condition	Existing Plus Project	Future Condition W/O Project	Future Condition W/ Project	Future W/ Project W/ Mitigation
No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	**EXISTING CONDITION**			**EXISTING PLUS PROJECT**			**FUTURE CONDITION W/O PROJECT**				**FUTURE CONDITION W/ PROJECT**				**FUTURE W/ PROJECT W/ MITIGATION**			
		Volume	**No. of Lanes**	**Lane Volume**	**Project Traffic**	**Total Volume**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	**Left**	66	1	**66**		66	**66**	0	69	1	**69**		69	1	**69**		69	1	**69**
	Left-Through		0							0				0				0	
	Through	785	1	403		785	403	87	902	1	462		902	1	462		902	1	462
	Through-Right		1							1				1				1	
	Right	20	0	20		20	20	0	21	0	21		21	0	21		21	0	21
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	**Left**	104	1	104		104	104	0	108	1	108		108	1	108		108	1	108
	Left-Through		0							0				0				0	
	Through	899	2	**450**		899	**450**	130	1064	2	**532**		1064	2	**532**		1064	2	**532**
	Through-Right		0							0				0				0	
	Right	194	1	194		194	194	0	201	1	201		201	1	201		201	1	201
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	**Left**	80	0	80		80	80	0	83	0	83		83	0	83		83	0	83
	Left-Through		0							0				0				0	
	Through	100	0	**252**		100	**252**	0	104	0	**262**		104	0	**262**		104	0	**262**
	Through-Right		0							0				0				0	
	Right	72	0	0		72	0	0	75	0	0		75	0	0		75	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	**Left**	17	0	**17**		17	**17**	0	18	0	**18**		18	0	**18**		18	0	**18**
	Left-Through		0							0				0				0	
	Through	90	0	160		90	160	0	93	0	166		93	0	166		93	0	166
	Through-Right		0							0				0				0	
	Right	53	0	0		53	0	0	55	0	0		55	0	0		55	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	516		*North-South:*	516			*North-South:*	601			*North-South:*	601			*North-South:*	601
			East-West:	269		*East-West:*	269			*East-West:*	280			*East-West:*	280			*East-West:*	280
			SUM:	785		*SUM:*	785			*SUM:*	881			*SUM:*	881			*SUM:*	881
VOLUME/CAPACITY (*V/C*) RATIO:				0.523			0.523				0.587				0.587				0.587
***V/C* LESS ATSAC/ATCS ADJUSTMENT:**				0.423			0.423				0.487				0.487				0.487
LEVEL OF SERVICE (LOS):				**A**			**A**				**A**				**A**				**A**

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**Δ*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #: 3	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by: 0	Date: 9/19/2019
	East-West Street:	Mayall Street	Projection Year:	2026	Peak Hour:	PM	Reviewed by:	Project: De Soto Trunk Line

	EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	35	1	35		35	35	0	36	1	36		36	1	36		36	1	36
	Left-Through		0							0				0				0	
	Through	1624	1	**821**		1624	**821**	157	1843	1	**931**		1843	1	**931**		1843	1	**931**
	Through-Right		1							1				1				1	
	Right	17	0	17		17	17	0	18	0	18		18	0	18		18	0	18
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	33	1	**33**		33	**33**	0	34	1	**34**		34	1	**34**		34	1	**34**
	Left-Through		0							0				0				0	
	Through	823	2	412		823	412	116	971	2	486		971	2	486		971	2	486
	Through-Right		0							0				0				0	
	Right	65	1	65		65	65	0	67	1	67		67	1	67		67	1	67
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	65	0	65		65	65	0	67	0	67		67	0	67		67	0	67
	Left-Through		0							0				0				0	
	Through	24	0	**131**		24	**131**	0	25	0	**136**		25	0	**136**		25	0	**136**
	Through-Right		0							0				0				0	
	Right	42	0	0		42	0	0	44	0	0		44	0	0		44	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	2	0	**2**		2	**2**	0	2	0	**2**		2	0	**2**		2	0	**2**
	Left-Through		0							0				0				0	
	Through	8	0	46		8	46	0	8	0	47		8	0	47		8	0	47
	Through-Right		0							0				0				0	
	Right	36	0	0		36	0	0	37	0	0		37	0	0		37	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	

		EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
CRITICAL VOLUMES	*North-South:*	854	854	965	965	965
	East-West:	133	133	138	138	138
	SUM:	987	987	1103	1103	1103
VOLUME/CAPACITY (*V/C*) RATIO:		0.658	0.658	0.735	0.735	0.735
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.558	0.558	0.635	0.635	0.635
LEVEL OF SERVICE (LOS):		A	A	B	B	B

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
4	East-West Street:	Lassen Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases		2		2		2		2		2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?		0		0		0		0		0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB--	0	NB-- 0 SB--	0	NB-- 0 SB--	0	NB-- 0 SB--	0	NB-- 0 SB--	0
	EB-- 0 WB--	0	EB-- 0 WB--	0	EB-- 0 WB--	0	EB-- 0 WB--	0	EB-- 0 WB--	0
ATSAC-1 or ATSAC+ATCS-2?		2		2		2		2		2
Override Capacity		0		0		0		0		0

MOVEMENT		EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	92	1	**92**		92	**92**	12	108	1	**108**		108	1	**108**		108	1	**108**
	Left-Through		0							0				0				0	
	Through	745	2	373		745	373	80	854	2	427		854	2	427		854	2	427
	Through-Right		0							0				0				0	
	Right	107	1	60		107	60	12	123	1	67		123	1	67		123	1	67
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	46	1	46		46	46	0	48	1	48		48	1	48		48	1	48
	Left-Through		0							0				0				0	
	Through	868	2	**434**		868	**434**	120	1021	2	**511**		1021	2	**511**		1021	2	**511**
	Through-Right		0							0				0				0	
	Right	80	1	46		80	46	10	93	1	54		93	1	54		93	1	54
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	68	1	**68**		68	**68**	8	79	1	**79**		79	1	**79**		79	1	**79**
	Left-Through		0							0				0				0	
	Through	533	2	267		533	267	7	560	2	280		560	2	280		560	2	280
	Through-Right		0							0				0				0	
	Right	79	1	33		79	33	14	96	1	42		96	1	42		96	1	42
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	95	1	95		95	95	14	113	1	113		113	1	113		113	1	113
	Left-Through		0							0				0				0	
	Through	768	2	**384**		768	**384**	8	806	2	**403**		806	2	**403**		806	2	**403**
	Through-Right		0							0				0				0	
	Right	103	1	80		103	80	0	107	1	83		107	1	83		107	1	83
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	

CRITICAL VOLUMES	*North-South:*	526	*North-South:*	526	*North-South:*	619	*North-South:*	619	*North-South:*	619
	East-West:	452	*East-West:*	452	*East-West:*	482	*East-West:*	482	*East-West:*	482
	SUM:	978	*SUM:*	978	*SUM:*	1101	*SUM:*	1101	*SUM:*	1101
VOLUME/CAPACITY *(V/C)* RATIO:		0.652		0.652		0.734		0.734		0.734
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.552		0.552		0.634		0.634		0.634
LEVEL OF SERVICE (LOS):		A		A		B		B		B

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #: 4	**North-South Street:**	Mason Avenue	**Year of Count:**	2019	**Ambient Growth: (%):**	0.54	**Conducted by:**	0	**Date:** 9/19/2019
	East-West Street:	Lassen Street	**Projection Year:**	2026	**Peak Hour:**	PM	**Reviewed by:**		**Project:** De Soto Trunk Line

No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0
	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	89	1	89		89	89	11	103	1	103		103	1	103		103	1	103
	Left-Through		0							0				0				0	
	Through	1407	2	**704**		1407	**704**	148	1609	2	**805**		1609	2	**805**		1609	2	**805**
	Through-Right		0							0				0				0	
	Right	266	1	226		266	226	11	287	1	239		287	1	239		287	1	239
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	87	1	**87**		87	**87**	0	90	1	**90**		90	1	**90**		90	1	**90**
	Left-Through		0							0				0				0	
	Through	629	2	315		629	315	108	761	2	381		761	2	381		761	2	381
	Through-Right		0							0				0				0	
	Right	101	1	33		101	33	8	113	1	38		113	1	38		113	1	38
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	137	1	**137**		137	**137**	9	151	1	**151**		151	1	**151**		151	1	**151**
	Left-Through		0							0				0				0	
	Through	638	2	319		638	319	8	671	2	336		671	2	336		671	2	336
	Through-Right		0							0				0				0	
	Right	42	1	0		42	0	13	57	1	6		57	1	6		57	1	6
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	80	1	80		80	80	13	96	1	96		96	1	96		96	1	96
	Left-Through		0							0				0				0	
	Through	535	2	**268**		535	**268**	7	563	2	**282**		563	2	**282**		563	2	**282**
	Through-Right		0							0				0				0	
	Right	133	1	90		133	90	0	138	1	93		138	1	93		138	1	93
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	

		EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
CRITICAL VOLUMES	*North-South:*	791	791	895	895	895
	East-West:	405	405	433	433	433
	SUM:	1196	1196	1328	1328	1328
VOLUME/CAPACITY *(V/C)* RATIO:		0.797	0.797	0.885	0.885	0.885
***V/C* LESS ATSAC/ATCS ADJUSTMENT:**		0.697	0.697	0.785	0.785	0.785
LEVEL OF SERVICE (LOS):		B	B	C	C	C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**Δ*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
5	East-West Street:	Plummer Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

	Existing Condition	Existing Plus Project	Future Condition W/O Project	Future Condition W/ Project	Future W/ Project W/ Mitigation
No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

		EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	93	1	**93**		93	**93**	0	97	1	**97**		97	1	**97**		97	1	**97**
	Left-Through		0							0				0				0	
	Through	836	2	418		836	418	128	996	2	498		996	2	498		996	2	498
	Through-Right		0							0				0				0	
	Right	133	1	0		133	0	0	138	1	0		138	1	0		138	1	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	60	1	60		60	60	12	74	1	74		74	1	74		74	1	74
	Left-Through		0							0				0				0	
	Through	1,004	2	**502**		1004	**502**	150	1193	2	**597**		1193	2	**597**		1193	2	**597**
	Through-Right		0							0				0				0	
	Right	68	1	51		68	51	12	83	1	59		83	1	59		83	1	59
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	34	1	34		34	34	14	49	1	49		49	1	49		49	1	49
	Left-Through		0							0				0				0	
	Through	361	2	**181**		361	**181**	7	382	2	**191**		382	2	**191**		382	2	**191**
	Through-Right		0							0				0				0	
	Right	148	1	102		148	102	0	154	1	106		154	1	106		154	1	106
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	398	1	**398**		398	**398**	0	413	1	**413**		413	1	**413**		413	1	**413**
	Left-Through		0							0				0				0	
	Through	581	2	291		581	291	8	611	2	306		611	2	306		611	2	306
	Through-Right		0							0				0				0	
	Right	68	1	38		68	38	14	85	1	48		85	1	48		85	1	48
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	595		*North-South:*	595			*North-South:*	694			*North-South:*	694			*North-South:*	694
			East-West:	579		*East-West:*	579			*East-West:*	604			*East-West:*	604			*East-West:*	604
			SUM:	1174		*SUM:*	1174			*SUM:*	1298			*SUM:*	1298			*SUM:*	1298
VOLUME/CAPACITY *(V/C)* RATIO:				0.783			0.783				0.865				0.865				0.865
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.683			0.683				0.765				0.765				0.765
LEVEL OF SERVICE (LOS):				B			B				C				C				C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	**North-South Street:**	**Mason Avenue**	**Year of Count:** 2019	**Ambient Growth: (%):** 0.54	**Conducted by:** 0	**Date:** 9/19/2019
5	**East-West Street:**	**Plummer Street**	**Projection Year:** 2026	**Peak Hour:** PM	**Reviewed by:**	**Project:** De Soto Trunk Line

No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	77	1	77		77	77	0	80	1	80		80	1	80		80	1	80
	Left-Through		0							0				0				0	
	Through	1380	2	**690**		1380	**690**	191	1624	2	**812**		1624	2	**812**		1624	2	**812**
	Through-Right		0							0				0				0	
	Right	206	1	146		206	146	0	214	1	151		214	1	151		214	1	151
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	90	1	**90**		90	**90**	11	104	1	**104**		104	1	**104**		104	1	**104**
	Left-Through		0							0				0				0	
	Through	748	2	374		748	374	138	915	2	458		915	2	458		915	2	458
	Through-Right		0							0				0				0	
	Right	35	1	0		35	0	11	47	1	0		47	1	0		47	1	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	161	1	161		161	161	13	180	1	180		180	1	180		180	1	180
	Left-Through		0							0				0				0	
	Through	599	2	**300**		599	**300**	8	630	2	**315**		630	2	**315**		630	2	**315**
	Through-Right		0							0				0				0	
	Right	100	1	62		100	62	0	104	1	64		104	1	64		104	1	64
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	121	1	**121**		121	**121**	0	126	1	**126**		126	1	**126**		126	1	**126**
	Left-Through		0							0				0				0	
	Through	350	2	175		350	175	7	370	2	185		370	2	185		370	2	185
	Through-Right		0							0				0				0	
	Right	148	1	103		148	103	13	167	1	115		167	1	115		167	1	115
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	780		*North-South:*	780			*North-South:*	916			*North-South:*	916			*North-South:*	916
			East-West:	421		*East-West:*	421			*East-West:*	441			*East-West:*	441			*East-West:*	441
			SUM:	1201		*SUM:*	1201			*SUM:*	1357			*SUM:*	1357			*SUM:*	1357
VOLUME/CAPACITY *(V/C)* RATIO:				0.801			0.801				0.905				0.905				0.905
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.701			0.701				0.805				0.805				0.805
LEVEL OF SERVICE (LOS):				C			C				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**Δ*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Workheet
(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
6	East-West Street:	Nordhoff Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

	EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
No. of Phases	3	3	3	3	3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

		EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	90	1	**90**		90	**90**	0	93	1	**93**		93	1	**93**		93	1	**93**
	Left-Through		0							0				0				0	
	Through	1,076	2	538		1076	538	114	1231	2	616		1231	2	616		1231	2	616
	Through-Right		0							0				0				0	
	Right	131	1	43		131	43	0	136	1	44		136	1	44		136	1	44
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	35	1	35		35	35	12	48	1	48		48	1	48		48	1	48
	Left-Through		0							0				0				0	
	Through	1,167	2	**584**		1167	**584**	138	1350	2	**675**		1350	2	**675**		1350	2	**675**
	Through-Right		0							0				0				0	
	Right	256	1	199		256	199	0	266	1	207		266	1	207		266	1	207
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	114	1	**114**		114	**114**	0	118	1	**118**		118	1	**118**		118	1	**118**
	Left-Through		0							0				0				0	
	Through	489	2	186		489	186	11	519	2	197		519	2	197		519	2	197
	Through-Right		1							1				1				1	
	Right	68	0	68		68	68	0	71	0	71		71	0	71		71	0	71
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	177	1	177		177	177	0	184	1	184		184	1	184		184	1	184
	Left-Through		0							0				0				0	
	Through	999	2	**355**		999	**355**	14	1051	2	**378**		1051	2	**378**		1051	2	**378**
	Through-Right		1							1				1				1	
	Right	67	0	67		67	67	14	84	0	84		84	0	84		84	0	84
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	674		*North-South:*	674			*North-South:*	768			*North-South:*	768			*North-South:*	768
			East-West:	469		*East-West:*	469			*East-West:*	496			*East-West:*	496			*East-West:*	496
			SUM:	1143		*SUM:*	1143			*SUM:*	1264			*SUM:*	1264			*SUM:*	1264
	VOLUME/CAPACITY *(V/C)* RATIO:			0.802			0.802				0.887				0.887				0.887
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.702			0.702				0.787				0.787				0.787
	LEVEL OF SERVICE (LOS):			C			C				C				C				C

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	**North-South Street:**	Mason Avenue	**Year of Count:**	2019	**Ambient Growth: (%):**	0.54	**Conducted by:**	0	**Date:**	9/19/2019
6	**East-West Street:**	Nordhoff Street	**Projection Year:**	2026	**Peak Hour:**	PM	**Reviewed by:**		**Project:**	De Soto Trunk Line

No. of Phases	3	3	3	3	3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

MOVEMENT		EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	87	1	87		87	87	0	90	1	90		90	1	90		90	1	90
	Left-Through		0							0				0				0	
	Through	1041	2	**521**		1041	**521**	178	1259	2	**630**		1259	2	**630**		1259	2	**630**
	Through-Right		0							0				0				0	
	Right	83	1	0		83	0	0	86	1	0		86	1	0		86	1	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	69	1	**69**		69	**69**	11	83	1	**83**		83	1	**83**		83	1	**83**
	Left-Through		0							0				0				0	
	Through	952	2	476		952	476	126	1115	2	558		1115	2	558		1115	2	558
	Through-Right		0							0				0				0	
	Right	104	1	0		104	0	0	108	1	0		108	1	0		108	1	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	266	1	266		266	266	0	276	1	276		276	1	276		276	1	276
	Left-Through		0							0				0				0	
	Through	1093	2	**450**		1093	**450**	13	1148	2	**472**		1148	2	**472**		1148	2	**472**
	Through-Right		1							1				1				1	
	Right	258	0	258		258	258	0	268	0	268		268	0	268		268	0	268
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	194	1	**194**		194	**194**	0	201	1	**201**		201	1	**201**		201	1	**201**
	Left-Through		0							0				0				0	
	Through	568	2	212		568	212	11	601	2	229		601	2	229		601	2	229
	Through-Right		1							1				1				1	
	Right	69	0	69		69	69	13	85	0	85		85	0	85		85	0	85
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	590		*North-South:*	590			*North-South:*	713			*North-South:*	713			*North-South:*	713
			East-West:	644		*East-West:*	644			*East-West:*	673			*East-West:*	673			*East-West:*	673
			SUM:	1234		*SUM:*	1234			*SUM:*	1386			*SUM:*	1386			*SUM:*	1386
VOLUME/CAPACITY (*V/C*) RATIO:				0.866			0.866				0.973				0.973				0.973
***V/C* LESS ATSAC/ATCS ADJUSTMENT:**				0.766			0.766				0.873				0.873				0.873
LEVEL OF SERVICE (LOS):				C			C				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**Δ*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
7	East-West Street:	Parthenia Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases					2					2					2					2					2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0					0					0					0					0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0
	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2					2					2					2					2
Override Capacity					0					0					0					0					0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	49	1	**49**		49	**49**	0	51	1	**51**		51	1	**51**		51	1	**51**
	Left-Through		0							0				0				0	
	Through	1,089	1	584		1089	584	100	1231	1	656		1231	1	656		1231	1	656
	Through-Right		1							1				1				1	
	Right	78	0	78		78	78	0	81	0	81		81	0	81		81	0	81
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	67	1	67		67	67	12	82	1	82		82	1	82		82	1	82
	Left-Through		0							0				0				0	
	Through	1,160	1	**667**		1160	**667**	126	1331	1	**756**		1331	1	**756**		1331	1	**756**
	Through-Right		1							1				1				1	
	Right	173	0	173		173	173	0	180	0	180		180	0	180		180	0	180
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	94	1	**94**		94	**94**	0	98	1	**98**		98	1	**98**		98	1	**98**
	Left-Through		0							0				0				0	
	Through	852	1	450		852	450	1	886	1	468		886	1	468		886	1	468
	Through-Right		1							1				1				1	
	Right	47	0	47		47	47	0	49	0	49		49	0	49		49	0	49
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	123	1	123		123	123	1	129	1	129		129	1	129		129	1	129
	Left-Through		0							0				0				0	
	Through	1,129	1	**629**		1129	**629**	1	1173	1	**660**		1173	1	**660**		1173	1	**660**
	Through-Right		1							1				1				1	
	Right	128	0	128		128	128	14	147	0	147		147	0	147		147	0	147
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	716		*North-South:*	716			*North-South:*	807			*North-South:*	807			*North-South:*	807
			East-West:	723		*East-West:*	723			*East-West:*	758			*East-West:*	758			*East-West:*	758
			SUM:	1439		*SUM:*	1439			*SUM:*	1565			*SUM:*	1565			*SUM:*	1565
VOLUME/CAPACITY *(V/C)* RATIO:				0.959			0.959				1.043				1.043				1.043
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.859			0.859				0.943				0.943				0.943
LEVEL OF SERVICE (LOS):				D			D				E				E				E

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #:	**North-South Street:**	**Mason Avenue**	**Year of Count:**	2019	**Ambient Growth: (%):**	0.54	**Conducted by:**	0	**Date:**	9/19/2019
7	**East-West Street:**	**Parthenia Street**	**Projection Year:**	2026	**Peak Hour:**	PM	**Reviewed by:**		**Project:**	De Soto Trunk Line

No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	62	1	62		62	62	0	64	1	64		64	1	64		64	1	64
	Left-Through		0							0				0				0	
	Through	973	1	**535**		973	**535**	165	1175	1	**639**		1175	1	**639**		1175	1	**639**
	Through-Right		1							1				1				1	
	Right	97	0	97		97	97	1	102	0	102		102	0	102		102	0	102
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	167	1	**167**		167	**167**	12	185	1	**185**		185	1	**185**		185	1	**185**
	Left-Through		0							0				0				0	
	Through	1109	1	620		1109	620	115	1267	1	702		1267	1	702		1267	1	702
	Through-Right		1							1				1				1	
	Right	131	0	131		131	131	0	136	0	136		136	0	136		136	0	136
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	139	1	139		139	139	0	144	1	144		144	1	144		144	1	144
	Left-Through		0							0				0				0	
	Through	1033	1	**541**		1033	**541**	1	1074	1	**563**		1074	1	**563**		1074	1	**563**
	Through-Right		1							1				1				1	
	Right	49	0	49		49	49	0	51	0	51		51	0	51		51	0	51
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	86	1	**86**		86	**86**	1	90	1	**90**		90	1	**90**		90	1	**90**
	Left-Through		0							0				0				0	
	Through	752	1	426		752	426	1	782	1	450		782	1	450		782	1	450
	Through-Right		1							1				1				1	
	Right	100	0	100		100	100	13	117	0	117		117	0	117		117	0	117
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	702		*North-South:*	702			*North-South:*	824			*North-South:*	824			*North-South:*	824
			East-West:	627		*East-West:*	627			*East-West:*	653			*East-West:*	653			*East-West:*	653
			SUM:	1329		*SUM:*	1329			*SUM:*	1477			*SUM:*	1477			*SUM:*	1477
	VOLUME/CAPACITY *(V/C)* RATIO:			0.886			0.886				0.985				0.985				0.985
	***V/C* LESS ATSAC/ATCS ADJUSTMENT:**			**0.786**			**0.786**				**0.885**				**0.885**				**0.885**
	LEVEL OF SERVICE (LOS):			**C**			**C**				**D**				**D**				**D**

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	**0.000**	**Δ*v/c* after mitigation:**	**0.000**
Significant impacted?	**NO**	**Fully mitigated?**	**N/A**

Level of Service Worksheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
8	East-West Street:	Chase Street	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases					2					2					2					2					2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0					0					0					0					0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0	NB--	0	SB--		0
	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0	EB--	0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2					2					2					2					2
Override Capacity					0					0					0					0					0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	47	1	47		47	47	0	49	1	49		49	1	49		49	1	49
	Left-Through		0							0				0				0	
	Through	1,114	1	564		1114	564	86	1243	1	628		1243	1	628		1243	1	628
	Through-Right		1							1				1				1	
	Right	13	0	13		13	13	0	13	0	13		13	0	13		13	0	13
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	24	1	24		24	24	12	37	1	37		37	1	37		37	1	37
	Left-Through		0							0				0				0	
	Through	1,246	1	651		1246	651	114	1408	1	733		1408	1	733		1408	1	733
	Through-Right		1							1				1				1	
	Right	55	0	55		55	55	0	57	0	57		57	0	57		57	0	57
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	44	0	44		44	44	0	46	0	46		46	0	46		46	0	46
	Left-Through		0							0				0				0	
	Through	50	0	160		50	160	0	52	0	167		52	0	167		52	0	167
	Through-Right		0							0				0				0	
	Right	66	0	0		66	0	0	69	0	0		69	0	0		69	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	18	0	18		18	18	0	19	0	19		19	0	19		19	0	19
	Left-Through		0							0				0				0	
	Through	46	0	99		46	99	0	48	0	117		48	0	117		48	0	117
	Through-Right		0							0				0				0	
	Right	35	0	0		35	0	14	50	0	0		50	0	0		50	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			North-South:	698		North-South:	698			North-South:	782			North-South:	782			North-South:	782
			East-West:	178		East-West:	178			East-West:	186			East-West:	186			East-West:	186
			SUM:	876		SUM:	876			SUM:	968			SUM:	968			SUM:	968
VOLUME/CAPACITY (V/C) RATIO:				0.584			0.584				0.645				0.645				0.645
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.484			0.484				0.545				0.545				0.545
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:	0	Date:	9/19/2019
8	East-West Street:	Chase Street	Projection Year:	2026	Peak Hour:	PM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases	2	2	2	2	2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0	NB-- 0 SB-- 0
	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0	EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	35	1	**35**		35	**35**	0	36	1	36		36	1	36		36	1	36
	Left-Through		0							0				0				0	
	Through	1136	1	580		1136	580	153	1333	1	**679**		1333	1	**679**		1333	1	**679**
	Through-Right		1							1				1				1	
	Right	24	0	24		24	24	0	25	0	25		25	0	25		25	0	25
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	33	1	33		33	33	11	45	1	**45**		45	1	**45**		45	1	**45**
	Left-Through		0							0				0				0	
	Through	1150	1	**593**		1150	**593**	104	1298	1	667		1298	1	667		1298	1	667
	Through-Right		1							1				1				1	
	Right	35	0	35		35	35	0	36	0	36		36	0	36		36	0	36
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	20	0	20		20	20	0	21	0	21		21	0	21		21	0	21
	Left-Through		0							0				0				0	
	Through	30	0	**79**		30	**79**	0	31	0	**82**		31	0	**82**		31	0	**82**
	Through-Right		0							0				0				0	
	Right	29	0	0		29	0	0	30	0	0		30	0	0		30	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
WESTBOUND	Left	15	0	**15**		15	**15**	0	16	0	**16**		16	0	**16**		16	0	**16**
	Left-Through		0							0				0				0	
	Through	13	0	47		13	47	0	13	0	62		13	0	62		13	0	62
	Through-Right		0							0				0				0	
	Right	19	0	0		19	0	13	33	0	0		33	0	0		33	0	0
	Left-Through-Right		1							1				1				1	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES		*North-South:*		628	*North-South:*		628		*North-South:*		724		*North-South:*		724		*North-South:*		724
		East-West:		94	*East-West:*		94		*East-West:*		98		*East-West:*		98		*East-West:*		98
		SUM:		722	*SUM:*		722		*SUM:*		822		*SUM:*		822		*SUM:*		822
VOLUME/CAPACITY *(V/C)* RATIO:				0.481			0.481				0.548				0.548				0.548
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.381			0.381				0.448				0.448				0.448
LEVEL OF SERVICE (LOS):				A			A				A				A				A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
9	East-West Street:	Roscoe Boulevard	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases				3				3				3				3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0				0				0				0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0
	EB--	0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0	EB--	0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2				2				2				2				2
Override Capacity				0				0				0				0				0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	77	1	**77**		77	**77**	12	92	1	**92**		92	1	**92**		92	1	**92**
	Left-Through		0							0				0				0	
	Through	897	1	486		897	486	29	960	1	519		960	1	519		960	1	519
	Through-Right		1							1				1				1	
	Right	74	0	74		74	74	0	77	0	77		77	0	77		77	0	77
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	67	1	67		67	67	12	82	1	82		82	1	82		82	1	82
	Left-Through		0							0				0				0	
	Through	1,031	1	**603**		1031	**603**	47	1118	1	**677**		1118	1	**677**		1118	1	**677**
	Through-Right		1							1				1				1	
	Right	174	0	174		174	174	55	236	0	236		236	0	236		236	0	236
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	174	1	**174**		174	**174**	43	224	1	**224**		224	1	**224**		224	1	**224**
	Left-Through		0							0				0				0	
	Through	1,049	2	383		1049	383	22	1111	2	410		1111	2	410		1111	2	410
	Through-Right		1							1				1				1	
	Right	100	0	100		100	100	14	118	0	118		118	0	118		118	0	118
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	162	1	162		162	162	0	168	1	168		168	1	168		168	1	168
	Left-Through		0							0				0				0	
	Through	1,031	2	**380**		1031	**380**	10	1081	2	**402**		1081	2	**402**		1081	2	**402**
	Through-Right		1							1				1				1	
	Right	108	0	108		108	108	14	126	0	126		126	0	126		126	0	126
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	680		*North-South:*	680			*North-South:*	769			*North-South:*	769			*North-South:*	769
			East-West:	554		*East-West:*	554			*East-West:*	626			*East-West:*	626			*East-West:*	626
			SUM:	1234		*SUM:*	1234			*SUM:*	1395			*SUM:*	1395			*SUM:*	1395
	VOLUME/CAPACITY (*V/C*) RATIO:			0.866			0.866				0.979				0.979				0.979
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.766			0.766				0.879				0.879				0.879
	LEVEL OF SERVICE (LOS):			C			C				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #:	North-South Street:	Mason Avenue	Year of Count:	2019	Ambient Growth: (%):	0.54	Conducted by:	0	Date:	9/19/2019
9	East-West Street:	Roscoe Boulevard	Projection Year:	2026	Peak Hour:	PM	Reviewed by:		Project:	De Soto Trunk Line

	EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
No. of Phases	3	3	3	3	3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	95	1	**95**		95	**95**	15	114	1	**114**		114	1	**114**		114	1	**114**
	Left-Through		0							0				0				0	
	Through	917	1	523		917	523	66	1018	1	576		1018	1	576		1018	1	576
	Through-Right		1							1				1				1	
	Right	128	0	128		128	128	0	133	0	133		133	0	133		133	0	133
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	98	1	98		98	98	11	113	1	113		113	1	113		113	1	113
	Left-Through		0							0				0				0	
	Through	912	1	**536**		912	**536**	41	988	1	**603**		988	1	**603**		988	1	**603**
	Through-Right		1							1				1				1	
	Right	160	0	160		160	160	52	218	0	218		218	0	218		218	0	218
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	191	1	191		191	191	75	273	1	**273**		273	1	**273**		273	1	**273**
	Left-Through		0							0				0				0	
	Through	1323	2	**480**		1323	**480**	15	1389	2	508		1389	2	508		1389	2	508
	Through-Right		1							1				1				1	
	Right	118	0	118		118	118	13	136	0	136		136	0	136		136	0	136
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	84	1	**84**		84	**84**	0	87	1	87		87	1	87		87	1	87
	Left-Through		0							0				0				0	
	Through	860	2	319		860	319	23	916	2	**343**		916	2	**343**		916	2	**343**
	Through-Right		1							1				1				1	
	Right	96	0	96		96	96	13	113	0	113		113	0	113		113	0	113
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	631		*North-South:*	631			*North-South:*	717			*North-South:*	717			*North-South:*	717
			East-West:	564		*East-West:*	564			*East-West:*	616			*East-West:*	616			*East-West:*	616
			SUM:	1195		*SUM:*	1195			*SUM:*	1333			*SUM:*	1333			*SUM:*	1333
	VOLUME/CAPACITY *(V/C)* RATIO:			0.839			0.839				0.935				0.935				0.935
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.739			0.739				0.835				0.835				0.835
	LEVEL OF SERVICE (LOS):			C			C				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	North-South Street:	Kelvin Avenue	Year of Count:	2017	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
10	East-West Street:	Roscoe Boulevard	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases	0	0	0	0	0
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	0	0	0	0	0
Override Capacity	1200	#####	1200	1200	1200

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through		0							0				0				0	
	Through	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Through-Right		0							0				0				0	
	Right	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	16	0	16		16	16		17	0	17		17	0	17		17	0	17
	Left-Through		0							0				0				0	
	Through	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Through-Right		0							0				0				0	
	Right	71	0	87		71	87		75	0	92		75	0	92		75	0	92
	Left-Through-Right		0							0				0				0	
	Left-Right		1							1				1				1	
EASTBOUND	Left	24	1	24		24	24		25	1	25		25	1	25		25	1	25
	Left-Through		0							0				0				0	
	Through	1,286	3	429		1286	429	76	1426	3	475		1426	3	475		1426	3	475
	Through-Right		0							0				0				0	
	Right	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through		0							0				0				0	
	Through	1,379	2	460		1379	460	103	1550	2	517		1550	2	517		1550	2	517
	Through-Right		1							1				1				1	
	Right	1	0	1		1	1		1	0	1		1	0	1		1	0	1
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	

CRITICAL VOLUMES	North-South:	87	North-South:	87	North-South:	92	North-South:	92	North-South:	92
	East-West:	484	East-West:	484	East-West:	542	East-West:	542	East-West:	542
	SUM:	571	SUM:	571	SUM:	634	SUM:	634	SUM:	634
VOLUME/CAPACITY *(V/C)* RATIO:		0.476		0.476		0.528		0.528		0.528
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.476		0.476		0.528		0.528		0.528
LEVEL OF SERVICE (LOS):		A		A		A		A		A

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Workheet

(Circular 212 Method)

I/S #:	**North-South Street:**	Kelvin Avenue	**Year of Count:**	2017	**Ambient Growth: (%):**	0.54	**Conducted by:**	0	**Date:**	9/19/2019
10	**East-West Street:**	Roscoe Boulevard	**Projection Year:**	2026	**Peak Hour:**	PM	**Reviewed by:**		**Project:**	De Soto Trunk Line

	EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
No. of Phases	0	0	0	0	0
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	NB-- 0 SB-- 0 EB-- 0 WB-- 0
ATSAC-1 or ATSAC+ATCS-2?	0	0	0	0	0
Override Capacity	1200	#####	1200	1200	1200

	MOVEMENT	**EXISTING CONDITION**			**EXISTING PLUS PROJECT**			**FUTURE CONDITION W/O PROJECT**				**FUTURE CONDITION W/ PROJECT**				**FUTURE W/ PROJECT W/ MITIGATION**			
		Volume	**No. of Lanes**	**Lane Volume**	**Project Traffic**	**Total Volume**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	Left	0	0	**0**		0	**0**		0	0	**0**		0	0	**0**		0	0	**0**
	Left-Through		0							0				0				0	
	Through	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Through-Right		0							0				0				0	
	Right	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	10	0	10		10	10		10	0	10		10	0	10		10	0	10
	Left-Through		0							0				0				0	
	Through	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Through-Right		0							0				0				0	
	Right	38	0	**48**		38	**48**		40	0	**50**		40	0	**50**		40	0	**50**
	Left-Through-Right		0							0				0				0	
	Left-Right		1							1				1				1	
EASTBOUND	Left	41	1	41		41	41		43	1	43		43	1	43		43	1	43
	Left-Through		0							0				0				0	
	Through	1504	3	**501**		1504	**501**	128	1707	3	**569**		1707	3	**569**		1707	3	**569**
	Through-Right		0							0				0				0	
	Right	0	0	0		0	0		0	0	0		0	0	0		0	0	0
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	0	0	**0**		0	**0**		0	0	**0**		0	0	**0**		0	0	**0**
	Left-Through		0							0				0				0	
	Through	1153	2	392		1153	392	94	1304	2	443		1304	2	443		1304	2	443
	Through-Right		1							1				1				1	
	Right	23	0	23		23	23		24	0	24		24	0	24		24	0	24
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	48		*North-South:*	48			*North-South:*	50			*North-South:*	50			*North-South:*	50
			East-West:	501		*East-West:*	501			*East-West:*	569			*East-West:*	569			*East-West:*	569
			SUM:	549		*SUM:*	549			*SUM:*	619			*SUM:*	619			*SUM:*	619
VOLUME/CAPACITY *(V/C)* RATIO:				0.458			0.458				0.516				0.516				0.516
***V/C* LESS ATSAC/ATCS ADJUSTMENT:**				0.458			0.458				0.516				0.516				0.516
LEVEL OF SERVICE (LOS):				**A**			**A**				**A**				**A**				**A**

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	**Δ*v/c* after mitigation:**	0.000
Significant impacted?	NO	**Fully mitigated?**	N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #:	**North-South Street:** De Soto Avenue	**Year of Count:**	2017	**Ambient Growth: (%):**	0.54	**Conducted by:** 0	**Date:** 9/19/2019
11	**East-West Street:** Roscoe Boulevard	**Projection Year:**	2026	**Peak Hour:**	PM	**Reviewed by:**	**Project:** De Soto Trunk Line

	EXISTING CONDITION	EXISTING PLUS PROJECT	FUTURE CONDITION W/O PROJECT	FUTURE CONDITION W/ PROJECT	FUTURE W/ PROJECT W/ MITIGATION
No. of Phases	4	4	4	4	4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0	*NB--* 0 *SB--* 0 *EB--* 0 *WB--* 0
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	**EXISTING CONDITION**			**EXISTING PLUS PROJECT**			**FUTURE CONDITION W/O PROJECT**				**FUTURE CONDITION W/ PROJECT**				**FUTURE W/ PROJECT W/ MITIGATION**			
		Volume	**No. of Lanes**	**Lane Volume**	**Project Traffic**	**Total Volume**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**	**Added Volume**	**Total Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	**Left**	124	2	68		124	68	0	130	2	72		130	2	72		130	2	72
	Left-Through		0							0				0				0	
	Through	1121	2	**449**		1121	**449**	99	1276	2	**536**		1276	2	**536**		1276	2	**536**
	Through-Right		1							1				1				1	
	Right	227	0	227		227	227	95	333	0	333		333	0	333		333	0	333
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	**Left**	166	2	**91**		166	**91**	29	203	2	**112**		203	2	**112**		203	2	**112**
	Left-Through		0							0				0				0	
	Through	1115	2	435		1115	435	120	1290	2	496		1290	2	496		1290	2	496
	Through-Right		1							1				1				1	
	Right	190	0	190		190	190	0	199	0	199		199	0	199		199	0	199
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	**Left**	288	2	158		288	158	0	302	2	166		302	2	166		302	2	166
	Left-Through		0							0				0				0	
	Through	1162	2	**421**		1162	**421**	5	1225	2	**443**		1225	2	**443**		1225	2	**443**
	Through-Right		1							1				1				1	
	Right	100	0	100		100	100	0	105	0	105		105	0	105		105	0	105
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	**Left**	212	2	**117**		212	**117**	67	290	2	**160**		290	2	**160**		290	2	**160**
	Left-Through		0							0				0				0	
	Through	838	2	323		838	323	3	883	2	349		883	2	349		883	2	349
	Through-Right		1							1				1				1	
	Right	132	0	132		132	132	24	163	0	163		163	0	163		163	0	163
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	540		*North-South:*	540			*North-South:*	648			*North-South:*	648			*North-South:*	648
			East-West:	538		*East-West:*	538			*East-West:*	603			*East-West:*	603			*East-West:*	603
			SUM:	1078		*SUM:*	1078			*SUM:*	1251			*SUM:*	1251			*SUM:*	1251
	VOLUME/CAPACITY (*V/C*) RATIO:			0.784			0.784				0.910				0.910				0.910
	***V/C* LESS ATSAC/ATCS ADJUSTMENT:**			0.684			0.684				0.810				0.810				0.810
	LEVEL OF SERVICE (LOS):			B			B				D				D				D

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project: 0.000 **Δ*v/c* after mitigation:** 0.000

Significant impacted? NO **Fully mitigated?** N/A

Level of Service Worksheet

(Circular 212 Method)

I/S #:	North-South Street:	De Soto Avenue	Year of Count:	2017	Ambient Growth: (%):	0.54	Conducted by:		Date:	9/19/2019
12	East-West Street:	Victory Boulevard	Projection Year:	2026	Peak Hour:	AM	Reviewed by:		Project:	De Soto Trunk Line

	Existing Condition	Existing Plus Project	Future Condition W/O Project	Future Condition W/ Project	Future W/ Project W/ Mitigation
No. of Phases	4	4	4	4	4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?	0	0	0	0	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0 SB-- 2 EB-- 0 WB-- 2	NB-- 0 SB-- 2 EB-- 0 WB-- 2	NB-- 0 SB-- 2 EB-- 0 WB-- 2	NB-- 0 SB-- 2 EB-- 0 WB-- 2	NB-- 0 SB-- 2 EB-- 0 WB-- 2
ATSAC-1 or ATSAC+ATCS-2?	2	2	2	2	2
Override Capacity	0	0	0	0	0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	81	1	**81**		81	**81**	18	103	1	**103**		103	1	**103**		103	1	**103**
	Left-Through		0							0				0				0	
	Through	873	2	410		873	410	126	1042	2	479		1042	2	479		1042	2	479
	Through-Right		1							1				1				1	
	Right	357	0	357		357	357	20	395	0	395		395	0	395		395	0	395
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	182	1	182		182	182	25	216	1	216		216	1	216		216	1	216
	Left-Through		0							0				0				0	
	Through	1,676	2	**632**		1676	**632**	145	1904	2	**712**		1904	2	**712**		1904	2	**712**
	Through-Right		1							1				1				1	
	Right	220	0	220		220	220	0	231	0	231		231	0	231		231	0	231
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	89	2	49		89	49	0	93	2	51		93	2	51		93	2	51
	Left-Through		0							0				0				0	
	Through	887	2	**321**		887	**321**	0	931	2	**341**		931	2	**341**		931	2	**341**
	Through-Right		1							1				1				1	
	Right	77	0	77		77	77	11	92	0	92		92	0	92		92	0	92
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	577	2	**317**		577	**317**	13	619	2	**340**		619	2	**340**		619	2	**340**
	Left-Through		0							0				0				0	
	Through	1,488	3	496		1488	496	0	1562	3	521		1562	3	521		1562	3	521
	Through-Right		0							0				0				0	
	Right	87	1	87		87	87	19	110	1	110		110	1	110		110	1	110
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
CRITICAL VOLUMES			*North-South:*	713		*North-South:*	713			*North-South:*	815			*North-South:*	815			*North-South:*	815
			East-West:	638		*East-West:*	638			*East-West:*	681			*East-West:*	681			*East-West:*	681
			SUM:	1351		*SUM:*	1351			*SUM:*	1496			*SUM:*	1496			*SUM:*	1496
VOLUME/CAPACITY *(V/C)* RATIO:				0.983			0.983				1.088				1.088				1.088
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.883			0.883				0.988				0.988				0.988
LEVEL OF SERVICE (LOS):				D			D				E				E				E

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	∆*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

Level of Service Worksheet
(Circular 212 Method)

I/S #:	North-South Street:	De Soto Avenue	Year of Count:	2017	Ambient Growth: (%):	0.54	Conducted by:	0	Date:	9/19/2019
12	East-West Street:	Victory Boulevard	Projection Year:	2026	Peak Hour:	PM	Reviewed by:		Project:	De Soto Trunk Line

No. of Phases				4				4				4				4				4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0				0				0				0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB--	0	SB--	2	NB--	0	SB--	2	NB--	0	SB--	2	NB--	0	SB--	2	NB--	0	SB--	2
	EB--	0	WB--	2	EB--	0	WB--	2	EB--	0	WB--	2	EB--	0	WB--	2	EB--	0	WB--	2
ATSAC-1 or ATSAC+ATCS-2?				2				2				2				2				2
Override Capacity				0				0				0				0				0

	MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	54	1	54		54	54	21	78	1	78		78	1	78		78	1	78
	Left-Through		0							0				0				0	
	Through	1261	2	542		1261	542	185	1509	2	638		1509	2	638		1509	2	638
	Through-Right		1							1				1				1	
	Right	365	0	365		365	365	23	406	0	406		406	0	406		406	0	406
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
SOUTHBOUND	Left	109	1	109		109	109	19	133	1	133		133	1	133		133	1	133
	Left-Through		0							0				0				0	
	Through	851	2	341		851	341	160	1053	2	411		1053	2	411		1053	2	411
	Through-Right		1							1				1				1	
	Right	171	0	171		171	171	0	179	0	179		179	0	179		179	0	179
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
EASTBOUND	Left	366	2	201		366	201	0	384	2	211		384	2	211		384	2	211
	Left-Through		0							0				0				0	
	Through	1520	2	555		1520	555	0	1595	2	591		1595	2	591		1595	2	591
	Through-Right		1							1				1				1	
	Right	145	0	145		145	145	26	178	0	178		178	0	178		178	0	178
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
WESTBOUND	Left	218	2	120		218	120	28	257	2	141		257	2	141		257	2	141
	Left-Through		0							0				0				0	
	Through	1069	3	356		1069	356	0	1122	3	374		1122	3	374		1122	3	374
	Through-Right		0							0				0				0	
	Right	145	1	145		145	145	25	177	1	177		177	1	177		177	1	177
	Left-Through-Right		0							0				0				0	
	Left-Right		0							0				0				0	
	CRITICAL VOLUMES		*North-South:*	651		*North-South:*	651			*North-South:*	771			*North-South:*	771			*North-South:*	771
			East-West:	675		*East-West:*	675			*East-West:*	732			*East-West:*	732			*East-West:*	732
			SUM:	1326		*SUM:*	1326			*SUM:*	1503			*SUM:*	1503			*SUM:*	1503
	VOLUME/CAPACITY *(V/C)* RATIO:			0.964			0.964				1.093				1.093				1.093
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.864			0.864				0.993				0.993				0.993
	LEVEL OF SERVICE (LOS):			D			D				E				E				E

REMARKS:

Version: 1i Beta; 8/4/2011

PROJECT IMPACT

Change in *v/c* due to project:	0.000	Δ*v/c* after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

- Cumulative Projects Trip Generation

Table A. Cumulative Projects Trip Generation

						AM Peak Hour			PM Peak Hour		
No.	**Land Use**			**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
	Project Trip Generation										
1	20700 W Sesnon Blvd (SF Residential)		774	DU	7,307	143	430	573	483	284	766
2	12450 Mason Ave (220 lot SF Residential)		220	DU	2,077	41	122	163	137	81	218
3	11401 N Porter Ranch Dr (44,632 sq ft Specialty Grocery Store)		44.632	TSF	1,685	26	16	42	82	88	170
4	20059 W Rinaldi St (38,400 sq ft Movie Theatre)		38.4	TSF	3,072	4	4	8	223	14	237
5	10247 N Variel (32 unit single family residential)		32	DU	302	6	18	24	20	12	32
6	9777 N Topanga Canyon Blvd (104 room hotel)		104	Rms	869	29	20	49	32	31	62
7	9805 N Mason Ave (18,016 sq ft grocery store)		18.016	TSF	680	10	6	17	33	36	69
8	9825 N Mason Ave (124 rm hotel; 10.35 TSF restaurant; 6.4 TSF fast food w/drive thru; 2 TSF drivethru coffee; 17 TSF retail; 20.125 TSF gym)	Hotel	124	Rms	1,037	34	24	58	38	36	74
		Restaurant	10.35	TSF	1,161	57	46	103	63	38	101
		Pass by reductions			*-250*	*-12*	*-10*	*-22*	*-27*	*-17*	*-43*
		Fast Food w Drive thru	6.4	TSF	3,014	131	126	257	109	100	209
		Pass by reductions			-754	-33	-32	-64	-54	-50	-105
		Drive thru Coffee	2	TSF	1,641	91	87	178	43	43	87
		Pass by reductions			*-410*	*-23*	*-22*	*-44*	*-22*	*-22*	*-43*
		Retail	17	TSF	642	10	6	16	31	34	65
		Gym	20.125	TSF	604	13	13	26	40	30	69
9	9631 N De Soto Ave (75,118 sq ft manufacturing bldg)		75.118	TSF	295	36	11	47	16	35	50
10	9505 N De Soto Ave (3,337 sq ft car wash)		3.337	TSF	474	19	19	38	24	24	47
11	9110 N De Soto Ave (79,847 sq ft mini-warehouse; 2,500 sq ft convenience store)		79.847	TSF	121	5	3	8	6	7	14
			2.5	TSF	1,906	78	78	156	63	60	123
12	9250 N Owensmouth Ave (58 student daycare)		58	Students	237	24	21	45	22	24	46
13	19400 W Londelius St (5,400 sq ft church)		5.4	TSF	38	1	1	2	1	1	3
14	20024 W Chase St (9 single family units)		9	DU	85	2	5	7	6	3	9
15	20620 W Roscoe Blvd (77 single family residential homes)		77	DU	727	14	43	57	48	28	76
16	20247 W Saticoy St (43 unit mid-rise residential)		43	DU	234	4	11	15	12	7	19
17	7353 N Milwood Ave (16 unit MF mid-rise residential)		16	DU	87	1	4	6	4	3	7
18	7150 N Tampa Ave (188 Assisted Living units)		188	Units	788	57	16	73	27	63	90
19	6940 N Owensmouth Ave (80 units of affordable housing family)		80	DU	333	16	26	42	17	14	30
20	21515 W Vanowen St (184 unit mid-rise residential)		184	DU	1,001	17	49	66	49	32	81
21	21001 W Kittridge St (275 unit mid-rise residential)		275	DU	1,496	26	73	99	74	47	121
22	6636 N Variel Ave (395 unit MF mid-rise housing)		395	DU	2,149	37	105	142	106	68	174
23	21201 W Victory Blvd (244 unit mid-rise residential; 50,550 sq ft of shopping)		244	DU	1,327	23	65	88	65	42	107
			50.55	TSF	1,908	29	18	48	92	100	193
		Pass by reductions			*-410*	*-6*	*-4*	*-10*	*-40*	*-43*	*-83*
24	6400 N Canoga Ave (610 mid-rise residenital units; 62,560 sq ft of shopping)		610	DU	3,318	57	163	220	164	105	268
			62.56	TSF	2,362	36	22	59	114	124	238
		Pass by reductions			*-508*	*-8*	*-5*	*-13*	*-49*	*-53*	*-102*
25	6160 N Variel Ave (269 mid-rise residential; 51,684 sq ft of shopping)		269	DU	1,463	25	72	97	72	46	118
			51.684	TSF	1,951	30	18	49	95	102	197
		Pass by reductions			*-419*	*-6*	*-4*	*-10*	*-41*	*-44*	*-85*
26	21322 W Oxnard St (127 room hotel)		127	Rms	1,062	35	24	60	39	37	76
				Total Cumulative Trip Generation	44,700	1,081	1,691	2,772	2,215	1,571	3,786

Notes: DU = dwelling unit; TSF = Thousand Square Feet

[1] Trip rates from *Trip Generation, 10th Edition* , Institute of Transportation Engineers, 2017.